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OUR NAVY AND MERCHANT MARINE.

Secretary Paul Morton of the navy department was recently given a dinner by the Merchants' club in Chicago. In the course of the after dinner Mr. Morton said:

"I desire to acknowledge the courtesy of this club for this great honor. While I understand perfectly that it is a



MR. PAUL MORTON, SECRETARY OF THE NAVY.

dinner to the secretary of the navy, I cannot altogether separate myself from the fact that Chicago is my home; that I belong to this club and among its members I have the pleasure of counting some of my warmest friends. I hope so long as I am a cabinet officer, you will consider me the representative of this club and this section of the country in the president's official family. Most of you probably know that I

have not sought the public service which I have just accepted. No man ever entered public life leaving behind him a more comfortable or fascinating position than I abandon here in Chicago. I have literally been in the house of my friends. I have had the greatest admiration and respect for my superior officer; the most cordial regard for my associates, and the keenest interest in my work and environments. We have been a happy family and all of us have been interested in the weal and woe of Chicago and the great west.

"Notwithstanding the press of the country has advertised me as an after-dinner talker of such rare ability that Senator Depew must look to his laurels, I am not a speech-maker as most of you know. I was brought up on a Nebraska farm, and on certain occasions this fact impresses itself on me with much emphasis. There is a great difference between plowing the field in agriculture, plowing the air in oratory and plowing the sea in the navy, and when I think of my doing either of the latter 'stunts' it naturally occurs to me what a farmer I am.

"It is very fitting that the Merchants' club should give a dinner to the secretary of the American navy, regardless of who he may be. This club represents the hope and future of the commerce of Chicago, and the navy is the watch-dog of American commerce everywhere on the high seas. I consider the American navy the policeman by day and the watchman by night, of our foreign trade, and the beat it travels is anywhere in the great universe where American trade or American interests are to be protected. Our sea-coast, next to that of the British empire, is the greatest in the world—over 23,000 sea-miles and there are those who living along the banks of tide-waters, think that the navy is solely for the protection and defense of our coast, but such is not the case, as the interior is and ought to be intensely interested in its success.

"Chicago being the chief commercial and financial center of the great Mississippi river valley—the most wonderful of all the valleys the world has ever known, is keenly interested in the navy because here is the center of agriculture, and agriculture is the foundation of all our commerce with foreign countries. It is a great satisfaction to me to find that Americans, regardless of politics, regardless of residence, whether on the sea-coast, from the prairies or from the mountains, believe that our navy should be modern, wide-awake competent instrument of warfare, second in its capacity to no other navy in the world.

"It will be my purpose to endeavor to impress the necessity of this upon the congress of the United States, which has of recent years been so liberal in its treatment of the

navy, that today I am informed by men who know, for its size, we have the best navy in the world. The navy of the United States is and ought to be a first class fighting machine. It should be the most formidable one in existence. Its military efficiency must receive the most careful attention. After the proper ships and weapons are provided, it should be the study of those in charge to see that the ships are handled right. There should be unlimited maneuvering and target practice so that the gunners may shoot straight, and the esprit de corps from the admiral down to the humblest 'tar' should be the acme of human co-operation.

"It should be a source of great regret to every American that we are so far behind our chief competitors for the markets of the world in our merchant marine. Some way must be devised so that American goods may be shipped in American bottoms built, officered and manned by Americans. There was a time when the Yankee sailor in our merchant service floated under the American flag on every sea and in some way we should bring about that condition again. I have no plan to suggest but I am a great believer that one will be found to which we can all subscribe. In times of peace, a large merchant marine should be yielding profits to American owners from the transportation of American goods to the markets of the world, and in times of war it should supplement the work of the navy. Great Britain, Germany, and France are strong in this respect and we are far behind.

"Secretary Tracy, while he was at the head of the navy, said the trouble with us was that our enlisted men were mostly foreigners and owed no allegiance to our flag. I am proud to tell you, notwithstanding the absence of a merchant marine, that the enlisted men of the new American navy are no longer foreigners; that 90 per cent of them are now American citizens and most of them American born. A large percentage of them are from the middle and western states. Ex-Secretary Moody says they are the best fed, best paid and best enlisted men that today walk the deck of a battleship. As I conceive the American navy and its objects, three words will cover the entire proposition—construction—instruction—destruction. I thank you one and all for the courtesy you have extended to me in inviting me to be with you this evening, for your good wishes for me in my new field of labor, and for your attention."

TORPEDO BOAT WITH RATEAU TURBINE.

An unofficial trial was made last week of a torpedo boat built by Messrs. Yarrow & Co. and engined with a combination of a steam turbine and an ordinary marine engine. The vessel is of usual construction and is 152 ft. long by 15 ft. wide. She is designed to carry an armament of three deck torpedo tubes and two 3-pounder quick-firing guns. The displacement is 140 tons and the speed with a load of 20 tons is 25 knots. Two runs were made over a measured course and somewhat over 20 knots was reached. No effort was made to get the highest speed, the run simply being made to show the general working of the turbines to a few persons interested. The propelling machinery consists of two Rateau turbines and an ordinary three-stage turbine engine. There are three shafts, each having one propeller. The turbines drive the two side propellers, the center screws being actuated by the reciprocating engine. There are two Yarrow boilers of the express type with 1-in. tubes. The total horse power developed is 2,000 and to this the reciprocating engine contributes 250. The turbines run at about 1,200 revolutions per minute and the reciprocating engines at about 450 revolutions per minute. The steam pressure is about 250 lbs. per square inch, the steam exhausting from the high-pressure turbine into the low-pressure turbine, the supply from the reciprocating engine being quite separate. In this respect the arrangement differs from that in previous designs in which steam turbines have been worked in conjunc-

tion with ordinary engines. There is a cylindrical condenser with a circulating pump of ordinary character. The air and feed pumps are also worked separately on the usual plan. There is a thrust bearing of twenty-five rings on the forward end of the turbines, the shafts projecting through to the front and terminating with the thrust bearing. The spacious nature of the engine room, characteristic of turbine boats, is very apparent in this vessel. The object of the arrangement of propelling machinery is, of course, to secure an economical engine at low speeds, combined with a highly efficient propelling installation for high speeds. The reciprocating engine will propel the vessel at approximately 10 knots, and, as it is then working at about its maximum ordinary power, it is naturally at its point of best efficiency. At such times the side propellers are allowed to revolve idly but are not detached from the turbines.

The Rateau turbine has already been fitted in a French torpedo-boat, but the result was not very satisfactory. This is not to be wondered at, as the boat was originally built for reciprocating engines, and the shafts had to be inclined to an excessive degree for the turbines, thus lowering the efficiency of the propellers. At the present time Prof. Rateau is completing the machinery for another French boat. This installation will consist of turbines combined with a reciprocating engine. The shafts in this case will be nearly horizontal. Two other vessels of the same type are being built for the purpose of comparison; one will have Parsons turbines and the other Breguet turbines. The trials of these three boats will be of the greatest interest, and it is to be hoped the results will be made public.

B. Frank Wood of City Island, New York city, has just completed from the designs of Messrs. Gardner & Cox, New York city, two gasoline launches. One is for H. I. Pratt and is built of steel, 96 ft. over all and 93 ft. on the water line. She is equipped with twin screws and two motors of 250 H. P. She has been called the Dodger and is guaranteed to make 20 knots per hour. The other was for John T. Pratt. She is built of double-planked mahogany, measures 74 ft. over all and 65 ft. on the water line. She is equipped with but one screw and a motor of 125 H. P. She is called the Weent and in her trial spin of 30 miles averaged 17 miles an hour.

W. K. Vanderbilt, Jr., one of America's most enthusiastic motorists, both on land and on water, not altogether satisfied with the showing of his motor boat, the Hard Boiled Egg, has a new boat well under way. It is claimed she will by far surpass the Hard Boiled Egg. She is very narrow. The hull is from a design by Mr. Robert Jacob of City Island, New York city, who is also building the boat. She will be equipped with a Mercedes motor of 60 H. P., and by competent judges it is said should prove a very fast boat. The motor of the Hard Boiled Egg is a Morse of 43.53 H. P.

The navy department is having trouble abroad with what seems to be a British coal combination. The navy has been unable to make contracts for fuel at Aden, Colombo, Funchal, Las Palmas, Perim, Teneriffe and Zanzibar, because where no contract exists commanding officers are directed to get the best terms they can in the open market. It has been found that tramp steamers find no difficulty in obtaining advantageous bids at these points while an American man-of-war is required to pay two or three shillings more per ton.

A number of dredging firms, including boat lines, which have heretofore registered in Michigan points will this fall and winter register from Superior and Duluth, giving each city a considerable sum in additional taxes. They do this to escape the exorbitant taxes of Michigan on marine property.

LIVERPOOL SHIPPING LETTER.

Liverpool, July 30.—Messrs. Cammell, Laird & Co., shipbuilders of Birkenhead, Liverpool, formerly known as Messrs. Laird Brothers, have just launched a new type of war vessel for the British admiralty which is intended principally for scouting purposes in war time. These new scouts are designed to be the fastest sea-going vessels in the world, and it is expected that 25 knots will be obtained on a prolonged full-power trial. The following are the principal dimensions: Length 370 ft., beam 38 ft. 6 in. The vessel under notice which was named *Pathfinder*, will be propelled by two sets of four-cylinder, triple-expansion engines of 16,500 H. P. balanced on the Yarrow, Schlick and Tweedy system, steam being supplied by twelve water-tube boilers of the Laird type, arranged in three watertight compartments. A protective deck is worked throughout the ship. The engines are protected by 2 in. especially treated Krupp non-cemented steel made at the company's armor plate works at Sheffield. The armament consists of ten 12-pounder quick-firing guns mounted as follows: Three on the forecastle deck, three aft on the upper deck and four on the upper deck in the waist of the ship. Also eight 3-pounder quick-firing guns, and two 18-in. torpedo tubes above water. When in commission the vessel will have a complement of about 290 men. It should be stated that this new class of warship has been designed for special purposes on lines laid down by the admiralty authorities. When it became evident that the kind of destroyer that was in use was hardly large enough for acting as a scout at sea, the naval people pressed for a larger type of ship, which would be able in all weathers to maintain a speed in excess of the vessels in any foreign fleet. The admiralty for wise reasons decided to leave the submission of the designs of this entirely novel type of ship to the enterprise and experience of private firms, and they invited those who had been identified with the building of war ships for many years to consider what they would propose to build on the conditions laid down. The conditions might or might not

have been the best possible for the purpose, but they were of such a nature that four of the most experienced shipbuilding concerns submitted designs which so nearly fell in with one another in regard to size and power to obtain the speed required that it was quite evident that the ships they proposed were the smallest and the least costly type by which the results required could be obtained. The four firms were Messrs. Vickers, Son & Maxim; Messrs. Armstrong, Fairfield Shipbuilding Co., and Messrs. Cammell, Laird & Co., four

names which are celebrated all over the world for ships designed for war purposes. As the result of what was submitted in the way of designs and estimates, slight modifications have been suggested by the admiralty to bring the vessels more into line, and the new type of ship as finally decided upon, of which the *Pathfinder* is the first to be launched, embodies the experience of experts seldom available, and form—if they accomplish what is confidently hoped of them—one of the greatest triumphs of naval architecture yet carried out. Mr. J. M. Laird speaking at the launch said critics had attacked the



OUTWARD BOUND.

scouts in a rather hostile manner, but the information on which the criticism was based was, he thought, erroneous. It did not appear that the critic had grasped the fact that the scouts were more than merely enlarged torpedo boat destroyers, that they were really modified protected cruisers. They had protection in the way of armor for the machinery and a protected deck throughout their length of 370 ft. Had they been merely enlarged destroyers to steam 25 knots without any protection they could have produced a much cheaper but less efficient vessel. As they stood the scouts would be most formidable. With regard to the bunker capacity of the scouts, the severely critical articles written about them, Mr. Laird said, appeared to have been based on a misapprehension, as the statements contained in the navy es-

timates as to the coal only related to the quantity that was to be on the vessels at the time of their trials. The bunker capacity of the Birkenhead built scouts was more than four times the bunker capacity put down on the navy estimates as the basis on which the trials would have to be made, and this extra capacity was bound to be of immense value. Almost everything on these boats had given way to coal capacity. H. M. S. Patrol, the second vessel of this type, now building by Messrs. Cammell, Laird & Co., is in an advanced state of construction.

In regard to the rate war in the Atlantic passenger trade, a Brussels correspondent writes that the Shipping Conference will meet again in September, but in the meantime the tariff difficulties threaten to be largely extended. The Hamburg-American Line supported by all the other continental lines, intends, it is further stated, to establish a new shipping service between Scotland and Ireland, in order to prejudice the interests of the Cunard Line. It is strange how much more is known on the continent of Europe about this rate war than in British shipping centers. If the Hamburg-American and other continental lines think they can do good business by a service between Scotland and Ireland I am sure the Cunard Line will not mind. The Cunard Line will thereby be prejudiced just to the extent as they have been by the ten-dollar steerage rate initiated by the German lines. At any rate the Cunard Line in the conflict still proceeding have not been the greatest sufferers.

The new King's dock at Swansea, the first sod of which was cut this week by King Edward, will be constructed within the next five years and will cost nearly ten million dollars. The dock will have an area of 66 acres, and will contain provision for the easy doubling of that enormous capacity. It will be able to accommodate the largest class of vessel even now contemplated, and will have the effect of converting the port into what is to all intents and purposes a deep water harbor. This vast undertaking is rendered necessary by the ever increasing trade, and by its means it is hoped that Swansea will maintain her position among the chief ports of the world. In and around Swansea every kind of mineral is dealt with from those of the precious description to that most useful of all, coal. In their development Swansea has flourished and continues to flourish, and the addition of new industries has been such as to make incessant extensions in the facilities for import and export absolutely necessary. The Price of Wales dock led to the establishment of ocean trades and to the capture of the monopoly of tinplate shipments from Liverpool. That trade is now almost exclusively held by Swansea.

Thanks to the formation of the International Sailing Ship union, homeward freights with which it is exclusively concerned, show a steady advance. Not long ago charterers, by playing off owners against each other, had got nitrate freights down to \$2.50 per ton; owners could go no lower because it meant ruin. The formation of the union has caused owners to stand back to back, and the natural result is a rise of nitrate freights from \$2.50 to \$4 and finally to \$4.50, but though the advance is considerable, it is only accepted until Aug. 15, when the official minimum of \$5 per ton comes into force. It will then only depend on the loyalty of the members to each other to get that figure and even more.

At the end of this month the admiralty will offer to private ship builders contracts for the building of three battle-ships and two first-class cruisers, together with other minor work, such as sloops, scouts, torpedo boat destroyers and submarines. These orders are of course supplementary to the work which is being undertaken in the government dock yards. There will be keen competition for these orders, as most builders are short of work. There is but a small demand for mercantile tonnage, and the admiralty work in hand is well advanced.

The turbine steamer building on the Clyde for the Allan Line Canadian service is not nearly so far advanced as her sister ship at Belfast which is expected to be launched in August, but she will, if at all possible, be ready in the spring of next year. The Victorian building at Belfast will, it is hoped, be running this autumn. For this vessel Mr. Parsons has devised a special reversing arrangement whereby power astern can be obtained equal to that forward, securing almost instant stopping of the ship whenever necessary. She will have accommodation for 1,500 passengers, and carry cargo to the extent of 8,000 tons. The coal bunkers will carry fuel for several days more than the double voyage, while both turbine steamers will have on board a Marconi installation and a printing office.

SHIPPING OF THE UNITED KINGDOM.

The Board of Trade has just published its annual report of the navigation and shipping of the United Kingdom for 1903. From the tables it appears that the total net tonnage of vessels entering and clearing with cargoes and in ballast at ports in the United Kingdom from and to foreign countries and British possessions were: In 1903, 105,619,344 tons; in 1902, 99,872,719 tons; and in 1901, 97,341,013 tons. The total for last year constitutes a record. Of the above the British flag was represented by 69,211,973 tons in 1903, 64,902,907 tons in 1902, and 62,789,841 tons in 1901, and the foreign flag was represented by 36,407,371 tons, 34,969,812 tons, and 34,561,172 tons respectively. In the coasting trade in the United Kingdom the British tonnage which entered and cleared with cargo amounted to 62,055,475 tons, against 62,200,558 tons in 1902, and 60,401,213 tons in 1901, while the foreign tonnage increased from 378,108 tons in 1901, and 374,977 tons in 1902, to 481,531 in 1903. Last year 988 foreign vessels, of 907,224 tons, entered or cleared from ports in the United Kingdom with cargo for British possessions. The following list shows the principal ports in the United Kingdom, the tonnage being that of vessels entering and clearing for abroad with cargoes and in ballast:

Port.	Tons.	Port.	Tons.
1. London	19,063,629	12. Leith	1,952,570
2. Liverpool	14,499,618	13. Sunderland	1,041,700
3. Cardiff	13,179,156	14. Dover	1,895,399
4. Tyne ports	9,021,217	15. Manchester	1,861,284
5. Hull	4,686,918	16. Middlesbrough..	1,801,241
6. Glasgow	4,297,054	17. Grimsby	1,749,155
7. Southampton ..	3,758,801	18. Harwich	1,477,382
8. Newport	2,712,574	19. Grangemouth ..	1,440,220
9. Swansea	2,470,614	20. Bristol	1,366,487
10. Blyth	2,382,148	21. Hartlepool	1,321,620
11. Kirkcaldy	2,297,199		

The Davis Coal & Coke Co., which controls the mines along the West Virginia Central railroad, is asking various ship builders to submit bids for constructing from four to six coal barges and one or two large sea-going tugs to be used for the coal business in connection with the Western Maryland railroad out of Baltimore as soon as the Cherry Run & Cumberland extension is completed. F. S. Sandstreet, vice-president of the Western Maryland, says that there is now being handled 2,000,000 tons of coal a year on the West Virginia Central and as soon as the line is connected up this will all be sent over the Western Maryland, requiring an average of five full trains a day and 1,000 vessels a year to handle it.

Betts Bros. Wrecking Co. will raise the Clyde line steamer Kiowa, sunk off Boston light last winter by being run into during a fog by steamer Admiral Dewey. The Kiowa was abandoned by the Boston Tow Boat Co.

SCOTCH SHIPPING LETTER.

Glasgow, July 28, 1904.—Although our annual industrial holiday season ends this week there is no great activity about the ship yards, many of which are not in any great hurry to open up again. There have been few launches and few contracts during the month, but within the last day or two Caird & Co., Greenock, have booked an order for a mail and passenger steamer for the P. & O. Co. She is to be a vessel like the *Assaye*, which the American liner *New York* nearly sent to the bottom a few months ago, of about 7,400 tons and 6,500 effective horse power. The new steamer *Caledonia*, which D. & W. Henderson & Co. are building for the Anchor Line, is to be a sister ship to the *Columbia*, but she is different in some details. She is registered as of 9,250 tons as compared with the *Columbia's* 8,292. She is 500 ft. long, while the *Columbia* is 485 ft. 5 in.; 58 ft. 2 in. broad, as compared with 56 ft. 2 in.; and 25 ft. 5 in. deep, as compared with 33 ft. 4 in. The engines are identical. The fleet of unemployed vessels tied up here is a depressing show. Several alterations have taken place of late, and the number now includes the steamers *Clymene*, *Redruth*, *Earnwood*, *Firth of Forth*, and *Concordia*, and the barques *Loch Katrine*, and *Pelly Woodside*. A number of idle vessels are laid up in other parts of the harbor but some are listed shortly to go into commission and two—Allan's *Corean* and Donaldson's *Estonia*—which have lain up for some time, are listed for early sailings. The dearth of employment may be gathered from the fact that some owners are willing to charter their boats to run out with coal to Vladivostok at 40s. per ton freight. It is a good freight, but there is nothing to be got homewards, and there is a very strong chance of capture by the Japs. Ship building in the United Kingdom, however, holds its own according to Lloyd's. The quarter ending June 30 contrasted with the record figures of 1901 show a reduction of about 30 per cent. But that is less than the reduction shown by the statistics at the end of 1903. The total tonnage under construction—993,088 tons—compares favorably with normal periods in the history of the industry, but the work is not fairly spread over the principal centres. Glasgow is in a worse position, comparatively speaking, than in the previous quarter, while Greenock is better. There are also decreases on the north-east coast against increases at the end of former quarter.

With so many new vessels of large dimensions now in existence the question is raised whether the time has not come for an alteration in the system of classification. In Lloyd's Register for 1904-5 reference is to steamships "above 10,000 tons." There are already between forty and fifty of such vessels on the register of the United Kingdom, several of these being over 20,000 tons. When the "above 10,000 tons" designation was adopted the number of such vessels was barely half a dozen. At that time Germany was rather ahead in the matter, but now she has only twenty-five to our forty-five. The United States follow with twelve, and all the other maritime powers combined with nine. Nearly all of the vessels of exceptional size owned by Germany, America, France, and Holland, are very little over 10,000 tons. Then although the Germans still hold first place on the Atlantic in point of speed, they will only do so until the fast Cunarders appear on the waters, but even on Lloyd's classification Britain can claim superiority. Out of sixty-four such steamers at present in the world, more than one-half are owned in the United Kingdom. When the Cunarders are ready, with their speed of 24½ knots, another change in Lloyd's classification will become necessary. No one can say that the size of the Baltic, or the *Caronia*, or the speed of the coming Cunarders, may not before long be exceeded, and the developments of today are certain to lead up to further developments tomorrow.

Another feature in the celebrated turbine case has appeared.

Mr. J. Melrose, R. N., the assessor who did not concur with the finding of the court in the recent appeal at Glasgow by William Denny & Bros. against the Board of Trade in refusing to grant a passenger certificate to the turbine steamer *Princess Maud*, has reported to the Board of Trade his reasons for disagreeing with that finding. He is of opinion that the special configuration of the condenser, and especially the very large area of flat unsupported surface presented by the top-plate of the education passage, warranted the surveyor in considering the structure so wide a departure from preceding types that further steps would be necessary before he could satisfy himself of the fitness of the condenser for the service intended; and that no engineer or surveyor on examining it for the first time, visually only, would be justified in concluding that its scantlings would be sufficient to establish beyond doubt that ample margin of strength existed throughout. Mr. Melrose does not think the request for a water pressure test was unreasonable, nor would it have involved any vexatious interference in the business of the engine builder. In admiralty practice a water pressure test of 30 lbs. per square inch applied internally is, says Mr. Melrose, held to be sufficient for the satisfactory determination of fitness to sustain such stresses as would arise in normal working, and he can see no reason for departing from this practice in the case of condensers for turbines.

American readers will be interested to know that here in Glasgow we are taking a leaf out of your books. The Clyde Navigation Trust is experimenting with various methods of handling ore cargoes in the hope of greater despatch. They have lately been using a British patent "grab" for lifting iron ore out of vessels, but they are now going to try another "grab," which arrived from New York by the Anchor liner *Ethiopia*. It comes from Pittsburg and is of the kind used for discharging your great lake steamers. There is considerable difficulty in obtaining a suitable "grab" for Glasgow harbor as the vessels here are not built for such appliances. On the great lakes the decks of your ships are practically all hatchway, and the engines are situated close to the stern, leaving no shaft tunnel for cargo to go over. Then the cargoes that come to Glasgow are varied, and the material is of all shapes and sizes, so that it is hardly possible to have mechanical appliances suitable for all the work. The cranes at the harbor are not powerful enough to operate "grabs" weighing perhaps 2½ tons and lifting over a ton and a half, with an occasional wrench that throws an additional strain of perhaps 2 tons on the lifting machinery. But if a suitable form of "grab" is discovered cranes suitable for it will be erected at the new dock at Clydebank.

Tenders for the new battleships of the Nelson class will be invited towards the end of August. The chief characteristic will be the great gun power. The design is to ensure a high gun platform, and in the new Nelson class there will be no guns on the main deck as in earlier ships. All of them will be on the upper deck, which will give them a more distant horizon. The guns will be more powerful. There will be two barbettes—one forward and the other aft—and in each there will be two 12-in. breechloaders. The secondary armament will consist entirely of 9.2-in. guns. In the King Edward VII. class there are four of these guns, in addition to ten 6-in. quick firers, but in earlier ships there were twelve or fourteen 6-in. guns only. There will be in the Nelson class ten 9.2-in. guns, which will make them by far the most powerful ships afloat. Twin 9.2-in. guns will be mounted in turrets at the four quarters of the citadel, and a single gun in the centre on each side. These guns will be built into the upper deck, which is to be heavily armored, the mechanism and mounting being protected by armored hoods or turrets. Thus the broadside of 9-in. Krupp armor will be utilized for protection from broadside attack, and the main armored

bulkheads forward and aft for shielding the gun mountings from raking fire. The broadside armor will not be weakened by openings, and the lower parts of the gun mountings and ammunition hoists will be effectively protected. The displacement will be about 15,000 tons, and the speed about 19 knots.

As a result of the recent Russian developments there has been more demand for war risk insurance than at any time during the last four months, and rates of premium have since the seizure of the Malacca doubled, and in some instances trebled. The war risk market had previously been flat for several weeks, as many merchants and owners have been running their own war risks with the result that premiums were considerably reduced. General cargoes by British and neutral steamers for Japan, have, however, now been placed at 20s liners, and 40s to 50s for outsiders, an increase of more than 50 per cent on former prices. Tea from China, and general merchandise outwards for Bangkok, which formerly could be covered practically for nothing if accepted with the sea risks, are now charged 5s per cent extra for war. Insurances have been effected against the possibility of England and Russia being involved in war during the near future, and as much as five guineas has been demanded for each £100 to be paid by the underwriter should war be declared during the next fortnight. The rate for a three months' policy is 10 guineas whilst for six months' insurance 15 guineas per cent has been paid. Before the Russo-Japanese war insurances against this contingency were effected for short periods, which in most instances expired before the commencement of hostilities at premiums ranging from 10 to 60 guineas per cent. Last January several insurances were effected for a premium of 5 to 10 guineas per cent against Russia and England being involved in conflict as an outcome of the struggle in the far east. As these policies were for twelve months many are still in force. Following upon the capture of the Malacca the seizure of the German liner, *Scandia*, further agitated the war risk market and more orders were received than could be readily executed. Ship owners are getting concerned, especially those trading to the east by way of the Red sea, in view of these captures of British and German steamers of such important lines. Underwriters who were lately willing to relieve owners of their war risks for 20s per cent. for twelve months, now demand from 60s to 80s for those trading in the east. The danger from drifting mines has also been considered since the report that the British steamer *Hip-Sang*, belonging to the Indo-China Steam Navigation Co., had been blown up by a mine whilst on a voyage from Niuchwang to Chifu.

The steamship *City of Atlanta*, which left Roach's Ship Yard, Chester, on her maiden trip to New York the week of July 20, is 306 ft. over all, 49 ft. molded beam, and 27 ft. molded depth, built entirely of steel, with four decks. She has four single-end boilers the steam from which drives a triple-expansion engine with cylinders 38, 46 and 75 in. by 48 in. stroke. The vessel is equipped with the latest type of steam-steering, electric lighting and hoisting apparatus. There are accommodations for eighty first-class passengers on the saloon deck and quarters for intermediate and third-class on the spar deck. Capt. Fisher is the commander. The *City of Atlanta* is a sister ship to the *City of Columbus*. The average load speed is 14 knots, with cargo capacity of 352,206 cu. ft.

A company has been formed in Cologne, Germany, with a capital of \$1,750,000 subsidized by the German and Dutch governments, to lay a cable to connect with the Dutch settlement on the island of Celebes through the island of Yap in the Pelens group, and from Shanghai to Guam, where it will connect with the Commercial Cable Co.'s Pacific cable.

SEEN AND HEARD ON THE LOOKOUT.

A visit to New London at about the time of the Yale-Harvard races would have convinced anyone that, though steam yachts and motor boats are numerous, the sail yacht should not be considered as having lost favor with all of those whose means enable, and whose inclinations direct them to indulge in this most expensive of pastimes. A visitor to that place once being asked what he thought of Boston replied that he could not see the town on account of the great number of houses; and the fleet of sail yachts moving between the lighthouse and Bartlett reef prevented visitors from seeing the harbor of New London. It was blowing rather stiff from the southeast, and in the vicinity of the lightship, where tide and wind met in strong opposition, the water's surface was what in nautical parlance is known as "choppy." Almost all the yachts having ladies and children on board the covers were permitted to remain on the topsails, but not one lady passenger was sufficiently timid to make the reefing of even the largest mainsails advisable. And of some of these mainsails it could truthfully be said that they would not be too small for the latest additions to the Gloucester fishing fleet. Whatever of truth there may be in the statement of the managers of excursion steamers that this yearly rowing contest is an event of national importance, some impromptu races on the Sound between the larger sail yachts were more pleasing to the eye of the spectator, and less fatiguing to the crews of the contestants. A great deal of interest was taken in a race between a flush-decked black yacht from New York and a white schooner hailing from Philadelphia, but an ungainly "ketch," appearing upon the scene under an astonishingly large spread of sail, proved a veritable "dark horse" by outpointing and outsailing the two schooners. In the daily papers this ketch was described as a yawl; a mistake the more strange from the fact that at least four yawls were in close proximity to the ketch, so that the difference in rig might easily have been observed.

Mr. Smith's Hanoli, considered the second fastest steam yacht in these waters, came over from Shelter Island, and several schooners tauntingly crossed her bows in impertinent, though vain, attempts to challenge for a speed contest. Besides the excursion boats craft of all kinds brought visitors from Long Island ports, and as an instance of the lack of fastidiousness on the part of the passengers it may be mentioned that several ladies arrived in New London on a sloop that on less memorable days carries junk across the sound. The commander of said sloop, a very obese colored man, had prepared for the occasion by painting his vessel sky-blue, but having omitted to scrape the spars, or even to wash the deck, neither the bright color of the sloop's sides, nor the gorgeousness of the commander's attire was conducive to make her compare favorably with the trim craft in the midst of whom she boldly anchored. The blue sloop's tender being built for only two to transfer the passengers ashore would have been a tedious process had not the owner of a schooner courteously sent his launch for ferrying purposes.

Since so many yachts left New London again assumed her everyday aspect, and the present visitor to that place should not fail to inspect a steam yacht that is being built there, and which is claimed to be the largest pleasure craft constructed. At this yacht's place of birth two freighters, whose combined length are nearly 1,500 feet, are also under construction.

During a storm at sea a timid lady passenger asked how deep the water was, and the captain replied that it was 2 miles from the water's surface to the bottom, but in a few hours they would come to a spot where there was a depth

of only half a mile. This information induced the passenger to beg the captain to hurry to that shallow spot, and to remain there until the storm was over. Not so very long ago an excursion steamer, crowded with children, took fire while in Long Island Sound. The captain of the blazing craft, finding that the fire was beyond control of his crew, decided to beach her. The General Slocum did draw not less than 9 feet, and when finally taking the bottom her position, as regards the safety of the tiny passengers, was not more advantageous than that of the vessel before alluded to when the latter reached the spot above which half a mile of turbulent water flowed. Only those among the Slocum's passengers whose stature exceeded 9 feet were able to walk shoreward. The captain of the sound steamer Orient, when discussing the disaster, delivered himself of the following: "Any captain who docks a burning boat is certain to be immediately arrested; but should I ever have the misfortune to be in charge of a burning boat, I would, when all our efforts to extinguish the blaze proved futile, do my level best to ram her into the nearest dock, without bothering with mooring lines, and trust to be forgiven for breaking the law, to say nothing of the dock."

And beyond saying that he might have run the risk of being arrested for docking his burning boat the majority of the frequenters along the New York water front give it as their opinion that the Slocum's captain should not be blamed for the course he pursued.

As might have been expected since the Slocum's mishap a general overhauling of life preservers and fire hose took place on most of the excursion boats around New York.

For instance, a few days after the so much talked about accident the superintendent of a prominent steamship company ordered weekly fire-drills on all his boats, while boat drills are now no longer indulged in only on rare occasions.

But managers of excursion boats generally predict a falling off in their business as a result of the wide publicity given the accident on Long Island Sound. It is now proposed to teach all public school children how to adjust life preservers, and with the law limiting the period of a life preserver's usefulness to a few years rigidly enforced the next serious mishap befalling an excursion steamer is not expected to excuse such an extreme loss of life.

A certain thought encumbered sage once said that "ambition is the infirmity of the great," and one might add: "the higher the ambition the higher the greatness." Though America has as yet not succeeded in her high ambition to possess a merchant navy commensurate with the size and the resources of the country, the yacht fleet under the stars and stripes—and this refers to quality as well as quantity—is unsurpassed.

However true it may be that so-called "racing machines" are neither very seaworthy nor exceptionally comfortable, in the season following one during which International yacht races took place a great many especially fast pleasure craft generally make their first appearance of the several clubs' fleets.

Whatever is novel having to encounter the hatred of conservatism, the launch equipped with a motor of the explosive type had to engage in what appeared, at first sight, an unequal contest with the tried and proven steam launch. When, then, Mr. Herreshoff decided to race his new steam launch Swift Sure against the auto boat Standard off Sea Gate, Coney Island,—the home of the Atlantic Yacht Club—it was generally predicted that the Swift Sure would surely prove too swift for the gasoline launch. Incidentally it may be mentioned that the Swift Sure averaged 23.16 statute miles, while the Standard went at the rate of 24.29 miles—the best speed ever shown in a race in American waters.

The Comanche, recently launched at the works of the Gas Engine & Power Co. and Charles L. Seabury & Co., Morris Heights, with a guaranteed speed of 30 miles per hour, is another auto boat whose owner has expressed his willingness to race her against all comers—first come, first served. The new launch is 66 ft. over all; 65 ft. on the water line, 6 ft. beam, and apparently of minimum draught. Her stern of the long torpedo boat design, with sharp overhang, and the fine entrance lines for the forward body are indicative of speed, while the "turtle-back" forward deck is suggestive of the shower of spray that is certain to drench the helmsman when the maximum charge of gasoline is exploding in her nine cylinders. Said cylinders are placed amidships, while cockpits forward and aft are for the accommodation of passengers. At the time of writing the trial trip of the Comanche had not yet taken place, but it is already safe to predict that in all open events for speedy craft this boat will receive favorable mention. F. H.

MISCELLANEOUS MATTER.

The Canadian government is considering various improvements on the Welland canal, including an electric lighting and power plant which will provide an arc light over 400 ft. along the canal with extra lights at the locks and piers. The estimated cost of the lights of 2,000 candle-power each is 25 cents per light per night. The present cost of lighting only the locks by gas is \$10,000. The cost by the electric system is figured at \$15,000 but the power will also be utilized for operating the locks and all the bridges along the canal. The electric lighting plant will cost about \$250,000. An expenditure of \$225,000 is asked to deepen the channel at Port Colborne to meet the low level of Lake Michigan and for the removal of obstructions. A suggestion has been made that the government take the Grand Trunk's railway from Port Colborne to Port Dalhousie, 25 miles, and operate it in connection with the canal, with a view to partly lightering the vessels, thus permitting ships of a larger draught than 14 ft. to go through the canal and reload in the lake at either end.

United States Steamboat Inspectors Mansfield and Peck on Aug. 4 issued orders for a reduction in the excursion licenses of the steamers Eastland and City of South Haven, both of which run between Chicago and South Haven, putting the new licensed capacity of the Eastland at 2,800 and of the South Haven at 2,500. Another order has been put into effect, to insure safety, to count passengers at ports on the east shore of Lake Michigan. Custom officers at all lake resorts have received instructions from Washington to keep account of passengers embarking on returning boats, to prevent overloading. Capt. William H. Evans of the steamer C. H. Hackley had his license suspended for thirty days from Aug. 4 because he paid no attention to repeated warnings as to the equipment of his boat. Similar penalties will be imposed upon any master of a passenger steamer who does not keep all life-saving apparatus in proper condition and his crew proficient in fire drill.

The Gas Engine & Power Co. and Charles L. Seabury & Co. have put the high-speed steam yacht Adroit in commission for the service of Alfred G. Vanderbilt of the New York Yacht Club. The Adroit was formerly owned by J. D. Archbold of the New York Yacht Club and was known as the Vixen. She is 100 ft. over all, 95 ft. on the water line, is 12 ft. beam and draws 4 ft. of water. She will speed 23 miles an hour.

City Engineer Budd, Des Moines, Ia., has completed plans for the levee improvement, which will cost about \$310,000. This estimate covers the entire cost of flood protection for South Des Moines, East and Southeast Des Moines, and Central Place.

POWER BOATS ON THE PACIFIC.

San Francisco, Aug. 1.—Many power boats equipped with gas engines manufactured in San Francisco bay, are owned not only on the waters of San Francisco bay, but also at San Pedro, Catalina island, San Diego and other places in Southern California. The glass-bottom launch, Lady Lou, the property of the Avalon Glass Boat Co., was built for the accommodation of the many tourists who visit Catalina island during the summer. She is 61 ft. long, 11 ft. 6 in. beam, 17 ft. 6 in. extreme beam, and is equipped with a 15 H. P. Union engine. She has a seating capacity of one hundred. The Cleopatra is a similar craft, 57 ft. long, 13 ft. beam, 18 ft. extreme beam, equipped with a 19 H. P. double cylinder Union engine, operating independent paddles, and a 3 H. P. electric light engine. She is the property of the Meteor Boat Co. of Avalon and can seat 100 persons. The glass bottom is kept scrupulously clean and bright, so that the passengers can watch the fish darting to and fro in the water, the seaweeds waving, and the many wonders of the depths of the Pacific ocean. The Lady Lou and Cleopatra are said to be the largest and finest glass boats in the world. They make daily trips during the season to Moonstone beach and Seal Rocks, Catalina island.

Another glass-bottom launch owned at Catalina is Mon Ami, the property of Gurius & Tobin of Avalon. She is 40 ft. long, with a beam of 8 ft. and an extreme beam of 10½ ft., and is equipped with a 10 H. P. double cylinder Union engine.

E. L. Doran of Avalon owns the power boat Pronto, which is 46 ft. 6 in. long, with a beam of 7 ft. She is a powerful craft, being equipped with a 45 H. P. four-cylinder Union engine.

The Banning Co., who own the whole of Catalina island except a few lots, are the owners of the launch Cricket, which is fitted with a 35 H. P. Union engine. The Banning Co. owns ten Union engines.

The Meteor Boat Co. of Avalon, Catalina, owns the launch Meteor, which has a 40 H. P. Union engine.

At San Pedro, which is being rapidly made into a good harbor by the construction of a long breakwater, there are several boats equipped with gas engines. Some of these are owned by fishermen and tow the sailing boats of the fishing fleet back to harbor when the breeze fails.

The launch Fox, owned by Capt. John Reid, and equipped with a 34 H. P. Union engine, was a winner at the 1903 regatta held at Astoria, Oregon.

Several boats owned in Seattle, Wash., are equipped with Union engines made in San Francisco. The Chilhoot, the property of the Pacific & Navigation Co. of Seattle, is 57 ft. long with a beam of 12 ft. 6 in. She has a 34 H. P. Union engine.

S. Schmidt & Co. of Astoria, Ore., owns a launch equipped with a 23 H. P. Union engine.

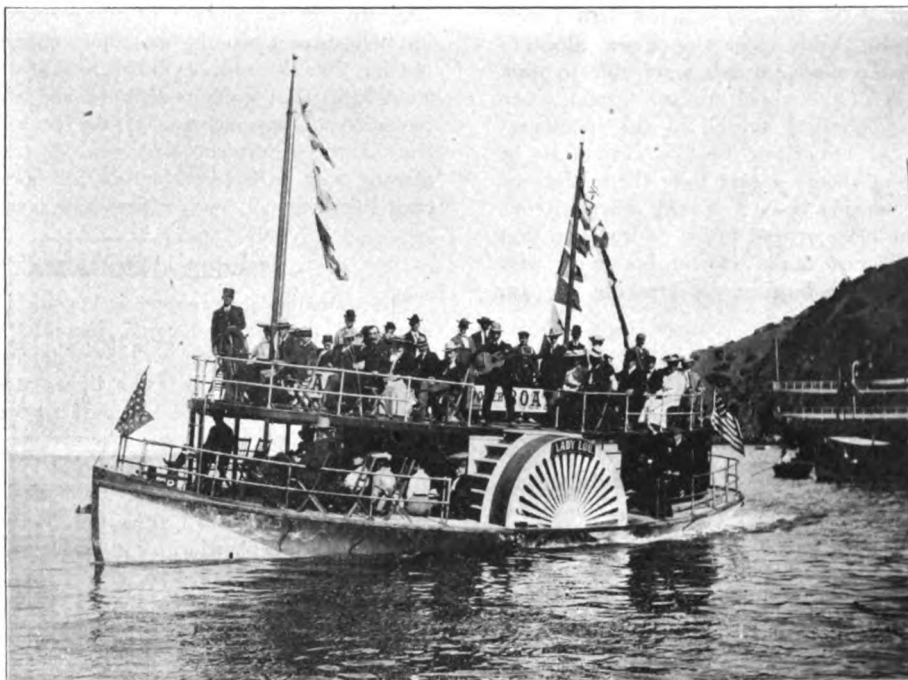
Rothschild & Co., shipping merchants and stevedores of Port Townsend, Wash., own the tugboat

Rothschild & Co., which has a length of 34 ft., a beam of 8 ft. 4 in. and a depth of 3 ft. 6 in. She is equipped with a 16 H. P. Standard engine.

At Blaine, Wash., H. F. Allen owns the fine boat Nimrod, which is equipped with a 34 H. P. Union engine. At the same place the J. W. & V. Cook Packing Co. owns the Ben Hur, with an engine of the same type and power as the Nimrod.

C. H. Carlson of Astoria, Ore., owns the launch Chief, which is equipped with a 30 H. P. Standard gas engine. Her cabin runs nearly from stem to stern, the engine being placed a little aft of amidships.

The Flyer, a freight carrier owned by C. J. Jorgensen of Nome, Alaska, is fitted with two 16



GLASS-BOTTOM BOAT AT CATALINA ISLAND.



A PORTION OF THE GLASS-BOTTOM FLEET.

H. P. Standard twin engines.

The tug Alida, owned by Peter Nelson of Bristol Bay, Alaska, has a length of 40 ft. and a beam of 11 ft. She is fitted with two 20 H. P. Standard twin engines.

C. N. Newcomb of West Palm Beach, Fla., owns a fine glass-

bottomed boat bearing the same name as a similar craft owned at Avalon, Cal.—Lady Lou. She is 53 ft. long, with a beam of 22 ft. and a depth of 4 ft. She is equipped with a 20 H. P. Standard engine. The Standard Gas Engine Co. makes a side-wheel engine specially suitable for light draught or glass-bottomed boats.

The Northern Commercial Co. has two mail boats, designated No. 1 and No. 2, running on the Yukon river, Alaska. Each is 29 ft. 6 in. long, with a beam of 5 ft. 6 in. and is fitted with a 10 H. P. Union engine.

The State of Washington Fish Commissioners own a handsome launch with an unusually commodious cabin. She is 40 ft. long with a beam of 9 ft. 6 in. and has a 19 H. P. Union engine. She is named Nola.

The Young Bros. of Honolulu, H. T., are the owners of a

She is 42 ft. long, 8 ft. 6 in. wide and has a speed of 8½ knots.

Many firms and private persons in New Zealand own craft equipped with Union engines. Capt. Harris of Picton owns the launch Foam, 20 ft. long, 5 ft. 6 in. wide, fitted with a 4 H. P. Union engine. James McAlpine of the same place owns a boat 30 ft. long, 6 ft. 6 in. wide, equipped with a 4 H. P. Union engine. She has a speed of 8 miles an hour.

A. Hatrick & Co. of Wanganui, New Zealand, own the tunnel launch Wai-ti, which is 40 ft. long, 8 ft. wide and has a draught of 9 in. aft and 6 in. forward. She is fitted with a 12 H. P. Union engine, which drives a 21-in. propeller in 9 in. of water. She has a speed of 8 knots an hour.

The Wanganui Settlers' Co. owns the tunnel launch Aorere, which is 42 ft. long and 8 ft. wide, with a draught of 9 in.



GROUP OF POWER BOATS USED IN FISHING.

powerful launch named Waterwitch. She is 45 ft. long, with a beam of 9 ft. and has a 40 H. P. Union engine.

Many vessels owned in the British colony of New Zealand are equipped with Union gas engines. Hinemoa's launch No. 1, the property of the government of the colony, has an 8 H. P. Union engine. She is 25 ft. long and 7 ft. 6 in. wide. Hinemoa's launch No. 2 is equipped with a 10 H. P. Union engine. The Tutanekai's launch weighs complete two tons and has a speed of 8 knots per hour. She is 30 ft. long and 7 ft. wide, and has a 10 H. P. Union engine.

The three-masted schooner Countess of Ranfurly, so named in honor of the wife of one of the governors of New Zealand, is fitted with three Union engines, viz., an 85 H. P. four-cylinder engine, a 5 H. P. hoist and windlass and a 3 H. P. electric light engine. She is the property of the government.

The Auckland Harbor Board's tug and pilot-boat Kuaka is fitted with three Union engines, viz., an 85 H. P. four-cylinder engine, a 5 H. P. windlass and a 3½ H. P. electric light engine. She has a speed of 10½ knots.

The Wellington Harbor Board of New Zealand owns the tug Uta, which is fitted with three Union engines, viz., a 50 H. P. double cylinder engine, a 5 H. P. windlass and a 3 H. P. electric light engine.

The Timaru Harbor Board, in the same colony, owns the Elsie Evans, which is fitted with a 19 H. P. Union engine.

She is fitted with a 15 H. P. Union engine, driving a 24-in. propeller in 9 in. of water. She has a speed of 8 knots an hour.

W. A. Ryan & Co. of Auckland owns the launch Union, 35 ft. long, 6 ft. 6 in. wide, fitted with a 10 H. P. Union engine, giving a speed of 8 knots an hour.

A. Weir of Morekai, New Zealand, owns the trawler Moerangi, which is equipped with a 25 H. P. Union engine.

The French government in Tahiti owns the schooner La Perle, equipped with a 40 H. P. Union engine.

The twin-screw schooner Bernardo Reyes, the property of Iberri y Hyos of Guaymas, Mexico, is equipped with two 29 H. P. Union engines.

The Standard Gas Engine Co. of San Francisco has supplied its marine engines not only to vessels in the Bay of San Francisco, but to owners in other parts of the state of California, in other states of the Union and foreign countries as well. The motor launch Nantucket, owned by Coggeshall's Eureka and Samoa passenger line of Eureka, Cal., has a length of 57 ft., a beam of 10½ ft. and a draught of 4 ft. Her registered tonnage is 9 tons and she is equipped with a 30 H. P. Standard engine.

At San Pedro, Cal., the launch Buster B is owned by Hardison, Carse & Co. She is 21 ft. 6 in. long, 5 ft. 3 in. wide and is equipped with a 3 H. P. Standard engine.



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AUGUST 11, 1904.

The navy department has just had an experience which is unique in its history. At the request of the Gas Engine & Power Co. and Charles L. Seabury & Co., Consolidated, Morris Heights, New York, the department recently wrote to the mayor of Dubuque, Ia., notifying him to select a young woman of that city to act as sponsor for the gunboat Dubuque soon to be launched at Morris Heights. It is understood, of course, that the launching costs, including the traveling expenses and entertainment of the sponsor, are borne by the ship building company. Yet the reply was received from the mayor of Dubuque that after diligent inquiry he could find no young woman in that town willing to take the journey to New York to christen the vessel. Such a thing has never occurred before and it is suspected that the mayor did not exercise the diligence of which he speaks.

Capt. Thomas Allnutt Brassey, editor of the Naval Annual, in speaking at Catfield, England, this week said that he was convinced that within ten years the command of the seas would have passed from Great Britain to the United States. He gave as his reason for thinking so the fact that the United States is building more battleships than Great Britain but that impresses us as a mighty slim reason. The struggle for supremacy in these latter days is commercial and

England's real command of the seas is in the number of merchant ships which, through the fostering care of the British government, have become legion, while those of the United States, through the indifference and neglect of congress, have dwindled to insignificant proportions. Unless something is done to sustain shipping in the foreign trade, and that quickly, there will be no merchant ships for the American navy to protect. The number of battleships is not the measure of a country's greatness. Battleships are a secondary consideration for they are created merely to protect the merchant ships. The United States is paying out annually \$200,000,000 in ocean freights and American ships are getting only \$16,000,000 of it. That's the biggest leak in the nation's industrial life and it's about time it was caulked. We are not declaiming against the battleship. The United States is a big country and it needs a big navy. But the humble tramp that carries the products of the field and factory to all parts of the earth should have first consideration.

It is quite clear from reports received from the Pacific coast that the Merchant Marine Commission appointed by congress to inquire into the state of American shipping in the foreign trade and to discover a remedy therefor, is receiving the same enthusiastic reception that has been accorded to its visits elsewhere. Twenty years ago the Pacific ocean was practically an unsailed sea as far as commerce was concerned, and even ten years ago its traffic was inconsiderable. However, since the Spanish-American war and the practical acquisition of the Philippine islands trade has grown greatly and some of the ships now sailing on the Pacific are among the finest in the world.

The most important reform urged upon the commission by Pacific coast interests was the abolition of the transport service between the ports of the Pacific coast and the American possessions in the orient. The statement made by Mr. Frank Waterhouse of the Boston Steamship Co. impressed the commission greatly. It was to the effect that the Boston Steamship Co. would guarantee the government 10 per cent less than commercial rates on supplies and passengers for ten years to come if the war department would give the company a fair share of the government business to and from Manila. Representative Minor unhesitatingly declared himself in favor of the abolition of the army transport service for the benefit of the American merchant marine. He coincided with the opinions of various witnesses that the government could do its transport business at less cost by private contract than by public ownership of its present fleet of transports. Senator Gallinger admitted that it was an anomaly for the government to appoint a commission to determine what legislation is necessary for the development of the American merchant marine and at the same time directly compete with it by conducting

a freight carrying business on its own account. Mr. Waterhouse after showing that American ships cost more to build and more to operate than foreign ships urged the adoption of a plan of subsidies, mail and otherwise, on all classes of American merchant vessels. He thought that subsidies should be perpetual but that payment should be made only for direct service rendered. He declared that only eight companies had more than 10,000 tons of American shipping engaged in foreign trade. No one is making any money in the foreign trade and he admitted that it was only the business secured from the government that had enabled his own company to continue in operation on the Pacific.

As a general thing the addresses made before the commission on the Pacific coast had favored a direct subsidy rather than a differential duty. Everyone unanimously believed, however, that remedial legislation is absolutely necessary if American bottoms are to be utilized for the carriage of American cargoes. American shipping cannot flourish under present conditions. The handicap imposed upon it is too great to be overcome in direct competition. As long as a ship can be built abroad at anywhere from 25 to 40 per cent less than it can be built in this country the foreign ship has to pay a dividend on 40 per cent less capital invested. But this, however, is only a small part of it; the real barrier is the higher cost of operation. Figures were submitted to the commission to show that if the vessels engaged in trans-Pacific trade were manned by Asiatics exclusively they could be operated for one-sixth the wage schedule paid to American seamen.

The Merchant Marine Commission has still to visit the cities on the south Atlantic coast, after which it will prepare the data obtained by it for congressional consideration. The report is to be presented to congress at the opening of the session and the temper of the country is such that it will probably be willing to let the question of shipping have the right of way over other legislation. One thing is certain and that is that the country is a unit for doing something for this neglected industry. It looks indeed as though a brighter day were dawning for the American merchant marine.

CARGO RECORDS TO DATE.

Since the Wolvin and Sahara went into commission cargo records appear to be subject to weekly amendment. The Wolvin has again broken the iron ore record by carrying 10,245 gross tons from Duluth to Erie, Pa. This enormous cargo was loaded in 1 hour, 30 minutes, including shifts. It took exactly 35 minutes to put the first 9,000 tons of ore aboard and then exactly 40 minutes for shifting the vessel to other pockets, and 15 minutes more to put in the remaining 1,245 tons of ore. It will thus be seen that the actual transfer of the 10,245 tons from the pockets into the boat occupied precisely 50 minutes. This trip of the Wolvin from Duluth to Erie was signalized also by the successful use of wireless telegraphy. Messages were successfully sent from the rivers

to the receiving station of the American DeForest Wireless Telegraphy Co. at Nottingham.

The Sahara took second place as a cargo carrier by carrying 8,737 gross tons of ore from Duluth to Conneaut. Vesselmen look upon the Sahara with a great deal of favor and it is expected that an endeavor will shortly be made to establish an unloading record for her. Following are the cargo records to date:

Iron Ore—Steamer Augustus B. Wolvin, owned by Acme Steamship Co., A. B. Wolvin, Duluth, manager, 10,245 gross tons or 11,474 net tons, Duluth to Erie, Pa. Steamer Augustus B. Wolvin, owned by Acme Steamship Co., A. B. Wolvin, Duluth, manager, 10,973 gross tons or 12,285 net tons, Escanaba to South Chicago. Steamer Wm. Edenborn, owned by Pittsburg Steamship Co., Harry Coulby, Cleveland, manager, 8,807 gross tons or 9,864 net tons, Escanaba to South Chicago. Steamer Sahara, owned by Globe Steamship Co., G. A. Tomlinson, Duluth, manager, 8,737 gross tons or 9,785 net tons, Duluth to Conneaut.

Grain—Steamers J. H. Reed and D. G. Kerr, Provident Steamship Co., A. B. Wolvin of Duluth, manager, 275,000 bu. of wheat each, equal to 8,250 tons (2,000 lbs.), Duluth to Buffalo; steamer D. M. Clemson, Provident Steamship Co., Harry Coulby, Cleveland, manager, 336,365 bu. of barley, equal to 8,073 tons, Duluth to Buffalo; steamer Rensselaer, Pittsburg Steamship Co., Harry Coulby, Cleveland, manager, 151,000 bu. of wheat, 94,000 bu. barley and 55,155 bu. of oats (300,155 bu. in all), equal to 7,668 tons, Chicago to Buffalo; steamer Mataafa, Pittsburg Steamship Co., Harry Coulby, Cleveland, manager, 185,309 bu. of corn, 40,000 bu. of rye and 43,600 bu. of wheat (268,000 bu. in all), equal to 7,619 tons, Chicago to Buffalo.

Coal—Steamer Augustus B. Wolvin, owned by Acme Steamship Co., A. B. Wolvin, Duluth, manager, 10,569 net tons of anthracite, Buffalo to Milwaukee; steamer Augustus B. Wolvin, owned by Acme Steamship Co., A. B. Wolvin, Duluth, manager, 9,904 tons, 1,800 lbs. of bituminous, Lorain to Duluth; steamer Sahara, owned by Globe Steamship Co., G. A. Tomlinson, Duluth, manager, 8,006 tons, 200 lbs. soft coal, Lorain to Duluth; steamer James H. Reed, owned by Provident Steamship Co., A. B. Wolvin, Duluth, manager, 8,029 tons, 1,400 lbs. of soft coal, Toledo to Duluth.

The Harlan & Hollingsworth Co., Wilmington, Del., have been the successful bidders in acquiring the following repair jobs: Steamer Orion of Boston, new stern post and general overhauling; steamer Mira, general overhauling and repairs amounting to \$17,000; United States steamer General Meigs, general overhauling and repairs amounting to \$30,000; the steamer Paraguay, docking, scraping and painting and general repairs; steamer Toledo, docking, scraping and painting, new propeller and general repairs; United States steamship Capt. Reilly, general overhauling and repairs; United States steamship Wistaria, general overhauling and repairs, \$12,000. The following new work is also progressing in the yard: Two new ferry boats for the Central Railway of New Jersey; one new ferry boat for the Erie Railroad Co.; one new caisson for the League Island navy yard.

The Metropolitan Yacht Club, occupying the old Randall homestead at 519 East 121st street, New York city, is only thirteen months old and has two hundred members and a fleet of 65 sailing craft and power boats. The founders of the club were members of the old Harlem Yacht Club. Some of the officers of the M. Y. C. are: Commodore, James F. Lator; Vice-Commodore, Samuel G. Smith; Rear-Commodore, John H. Symmers; Fleet Captain, A. L. Hart; Measurer, Emil Miller; Corresponding Secretary, William J. Fitzgerald.

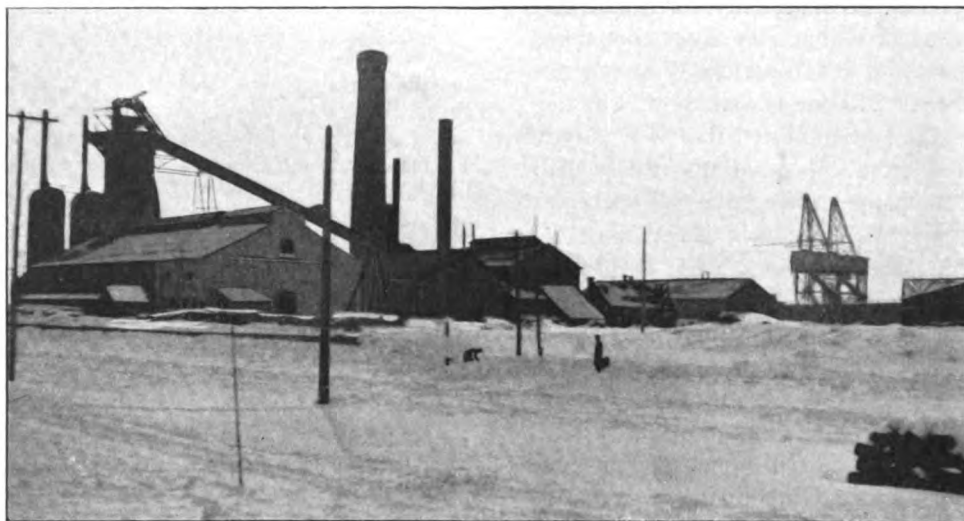
MAKING IRON IN LAKE SUPERIOR REGION.

Duluth, Aug. 8.—The expenditure of \$1,000,000 to demonstrate the possibility of iron manufacture at the head of Lake Superior has just been completed. It is by no means the initial experiment there calling for an outlay as large, but it has a character quite different from any prior attempt at that point. This being the case it deserves respectful consideration, and especially so when the men now associated in the enterprise are taken into the account.

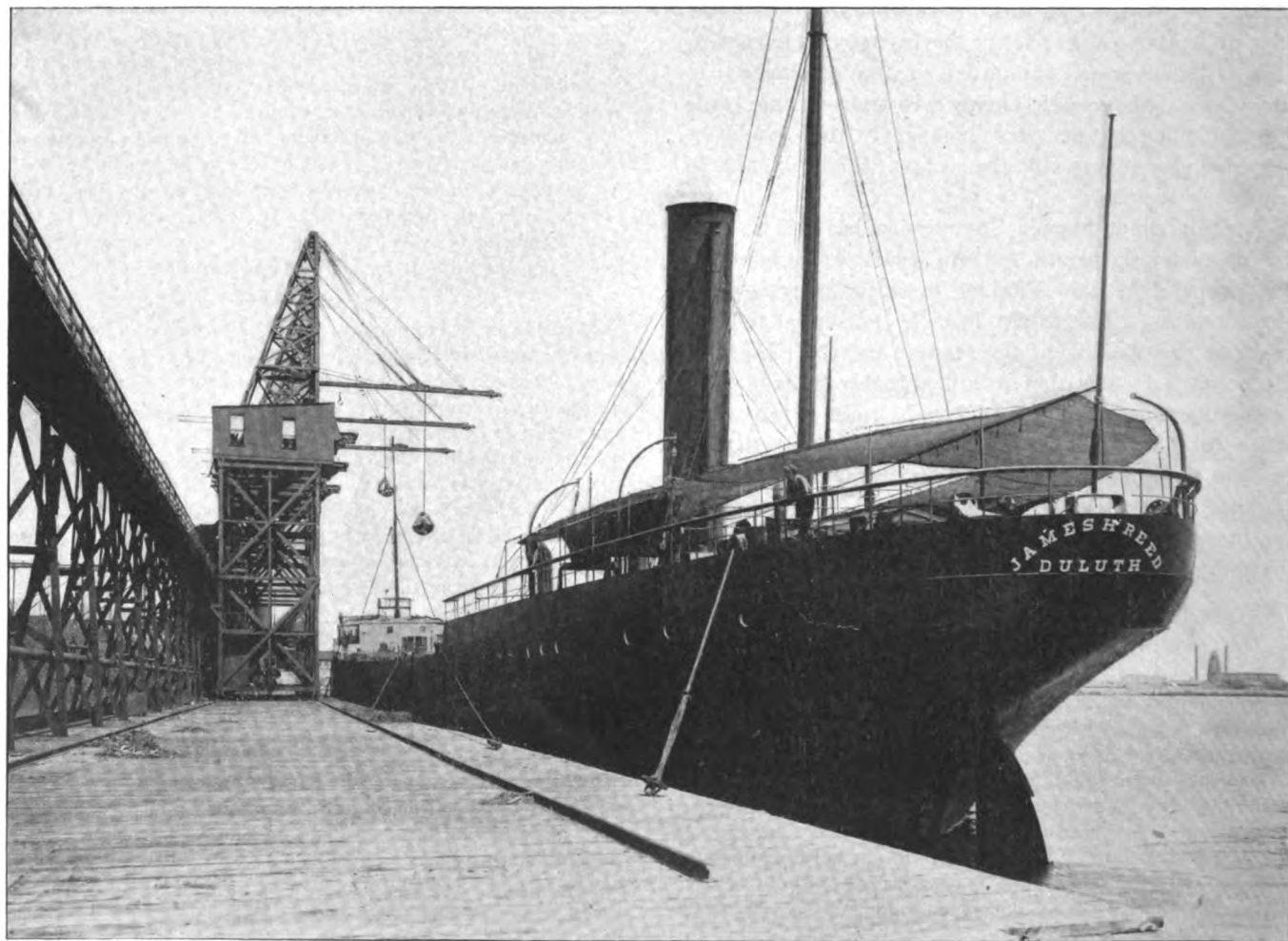
It would be hard to catalogue the voluminous reports on the possibilities of iron making at Duluth and Superior that have

been made from time to time, nor of the many attempts that have resulted. None of these seem to have reached the root of the matter. That, to my notion, lies in the questions of fuel and markets. Heretofore furnaces and other iron industries at the head of Lake Superior have relied upon the east

for coke, and freight charges have been enormous, for bringing coke all rail for 1,000 miles is no small undertaking. Water transport, with bulk broken en route, is impracticable. In the past the question of a market was not given the consideration it required. The dominant idea in the minds of those responsible for the



ZENITH FURNACE CO.'S PLANT AT DULUTH.



STEAMER J. H. REED AT ZENITH FURNACE CO.'S PLANT.

present Zenith Furnace Co. at Duluth, has been that coke must be made at the furnace and that by the saving of by-products it could be made at low cost, and that a nearby market must be secured. To the former end they have spent nearly all their \$1,000,000 in the fuel side of the question, and with the second consideration in mind they have secured, not only long time contracts for pig iron at fairly remunerative prices, but a personnel that may easily mean ultimately the carrying forward of the pig iron into minor finished steel forms for the northwestern market. For while the northwest is now no great consumer of plates, shapes, etc., it does use nails and wire and rods and a thousand and one things, any one of which the immediate vicinity of the head of the lakes consumes to a far greater tonnage than a plant such as the Zenith Furnace Co. can supply.

Theoretically there is no question as to the proper habitat for iron and steel manufacture; it is at the point where material can be most cheaply assembled. The market and the labor question complicate the problem. Duluth may not be a good point for a rail mill, though as to this a summary of the tonnage going into the northwest would probably be a surprise, and it surely is now no place for the successful manufacture of plates and shapes, for at least 90 per cent. of these materials are consumed east of the western line of Pennsylvania. Assemblage of material can be made at less cost at the head of Lake Superior than at any other point. This is not open to argument and cannot be so, as long as the great bulk of the commerce of the inland lakes is eastbound, with a lower rate westward than to the east, nor so long as it takes less coal than ore to make a ton of iron. As to common labor, it costs more per hour in the northwest than through the east, but the laborer does more per day, and in experiments carried along this line the difference in money paid is shown to be fully made up by the improvement in results. As to skilled labor, scales probably govern at all points.

The first effort at iron making at the head of Lake Superior was at Duluth in 1871, when the firm of Schoenberger & Bryant put up a 30-ton charcoal blast furnace. There was no thought of ore in Minnesota in those days and the Marquette range was sole source of supply, stone was brought from Lake Erie at a cost that would be ruinous today, and a poor grade of charcoal was made from a mixture of hard and soft woods in the immediate vicinity of the furnace. The idea was to consume the product at home and for a while a car works was operated. But it did not need the panic of '73 to show the futility of the effort. Nothing more was done until 1882, when a 150-ton coke furnace was erected by a local company. This has been twice remodeled and enlarged and at times made a good deal of money. A year ago it was bought by the Zenith Furnace Co. and was again enlarged, this time to 250-ton capacity. The furnace ran long enough to demonstrate its ability and was successful, but in the fall was closed down for a complete overhauling and a construction of coking plants.

Contracts were made with the American Coke & Gas Construction Co., owner of the Otto-Hoffman patents, for the installation of a complete and modern plant of a capacity for about 350 tons of coke daily. The cities of Duluth and Superior closed agreements for all gas for municipal use and much of the tar by-product was placed with a company organized for the manufacture of tar paper and felt, the rest will probably go to road paving companies, for it has been found an ideal binder for macadam pavement for the cold region where the company is located and is already in considerable use. Work on the coking ovens began last fall and has been steadily pushed until now, when the plant is in successful operation. The furnace blew in this week.

The fuel side begins with a coal dock covering 300 by 1,200

ft. and capable of storing more than 250,000 tons of coal and stone. Its seasonal capacity for shipment is very large, for it is fitted with perhaps the fastest receiving and discharging plant at the head of the lakes. This coal dock was built by the Barnett & Record Co., well and favorably known contractors. The foundation for dock and the rest of the new work consisted of about 10,000 long piles, driven to refusal, and the entire plant was then filled with sand dredged from the company's channels in front. Sand was all placed back of heavy solid cribbing of western fir timber and the depth of the channels reaching the company's property is 21 ft., so that any ships sailing the lakes may easily land full cargoes there. On the inner face of this coal dock is a series of pockets, 40 ft. high, for handling coal for shipment, for the company expects to do a large forwarding business and is even now shipping about 70 cars of coal per day to the railway trade. Around the entire periphery of the dock, and above these pockets, is a cable railway, handling cars that load, traverse the dock, and unload, all automatically. The handling of cargoes out of ships is by three of the well known Mead hoists, which probably come nearest to eliminating human labor of any dock rigs in use for coal, expense of installation considered. Traversing the width of the dock from side to side above the pockets is a steel bridge, movable along the entire length of the structure, and connected with the cable railway by adjustable switches. This bridge also carries a pickup for coal, for handling material out of the storage piles below. In the construction of this dock more than 4,000,000 ft. of western timber was used, together with an immense amount of piling and earth filling.

On the inner side the dock below the cableway is a Williams crusher for crushing to size coal destined for coking. From this crusher all coal so treated rises 80 feet in a link belt conveyor to the top of a 1,200-ton bunker over one end of the oven plant. Beneath the bunker and traveling the length of the ovens on a steel bridge suspended from above and quite independent of the oven structure, is a charging larry for the ovens. This larry is fitted with automatic scales and carries a load of 8 tons of coal, the charge for each oven.

This plant is well located on deep water in the upper harbor of Duluth. It has a dock frontage of 6,800 ft. that may be increased to 8,000 by the addition of a west side slip, and any ship that can enter Lake Superior can reach its dock with ease. The company is excellently fortified by association, among its stockholders, with many inter-dependent lines of material, transportation and marketing. It is no secret that the company stands ready, when opportunity offers, to extend its product as far as probable dividends may seem to invite. It is in this fact, indeed, that its chief importance lies. Mr. A. B. Wolvin of Duluth, a man with wide interests and a high standing, is prime mover in the enterprise. Associated are capitalists of Duluth, Chicago and Cleveland, including Pickands, Brown & Co., members of the Marshall-Wells Hardware Co., and many others. Mr. George W. Foote, formerly with the Illinois Steel Co., is superintendent of the furnace division; Mr. C. W. Andrews, formerly president of the Hamilton Otto Co., is manager of the coal, coke and gas department. The company has a capital stock at present of \$1,000,000.

Frank M. Randall, owner of the yacht *Step Lively*, has filed a libel at Brooklyn against the gasoline freight boat *Ellen S.*, owned by Capt. Charles A. Mathieson. Mr. Randall alleges that the *Ellen S.* broke the cable of his boat and wrecked her generally. He asks for \$1,500 damages.

Wm. F. King, president of the Merchants' Association of New York city has bought the steamship *Garonne* and will run her between Portland, Ore., and Nome.

CHICAGO GRAIN REPORT.

Chicago, Aug. 9.—The past week conditions in country movement of grain and eastern buying demand determined a much improved tone in local chartering and lake rates have ranged from 1 cent to 1¼ cents Buffalo corn, reacting to 1½ cents on which basis business is going at outset of present week. Georgian Bay and Port Huron demand rather easy at 1½ cents corn, with Montreal likewise slow and unchanged at 3 cents basis corn, all water routing. Liners are under fair package freight inquiry and dealing sparingly in grain engagements. All dock conditions are favorable and boats are enjoying very fair despatching both loading and unloading.

Vessels running about in equal supply with cargo offerings supports the generally firmer tendency but in the outgrowth of extensive reports by rust in the spring wheat belt market prices have reached the highest record level since 1897—upward of \$1.00 on wheat and about 55 cents corn; necessarily, therefore, the outshipping demand is intermittent and freights must be dealt with from "spot" standpoint until cash marketing effort settles upon a warrantable shipping basis.

The shipments as summarized below, for this week, distributed about as follows: Via all-rail lines of wheat 200,000 bu., corn 195,000 bu., oats 520,000; via lake to Buffalo and other American points, of wheat 270,000 bu. and corn 1,300,000 bu.; via lake to Canada points about 125,000 bu. corn.

Lake and rail shipments:

	This week.	Last week.	Same week last year.
Wheat	484,074	298,335	228,867
Corn	1,661,140	1,812,047	1,355,741
Oats	523,509	671,292	645,048
	<u>2,668,723</u>	<u>2,781,674</u>	<u>2,229,656</u>

	Shipments since Jan. 1, 1904.	Same time last year.
Wheat	8,102,946	12,227,052
Corn	38,571,964	48,644,161
Oats	27,258,844	39,308,512
	<u>73,933,754</u>	<u>100,179,725</u>

Stocks of grain in elevators:

	This week.	Last week.	Same week last year.
Wheat	2,330,000	2,396,000	4,260,000
Corn	4,868,000	5,383,000	6,159,000
Oats	1,001,000	872,000	4,617,000
Rye	563,000	558,000	372,000
	<u>8,762,000</u>	<u>9,209,000</u>	<u>15,408,000</u>

AROUND THE GREAT LAKES.

The steamer Soo City is to be placed in the dry dock for a thorough recalking at Buffalo.

The schooner Oliver Mitchell was libelled for repairs Aug. 8 by the Oades ship yard at Detroit.

The steamer Merrimac, belonging to the Gilchrist fleet, ran aground in the Maumee river Aug. 8.

The wreck of the barge Garritt P. Smith, which sank at Bay City ten years ago, is to be dynamited.

Capt. James W. Hawley will begin work next month on a 700-ton 4-masted schooner to be ready for launching in December.

Richoldt & Walter have been awarded the contract to build a dock at Sheboygan for the city. The structure is to be 100 ft. long.

The steamer Lucille owned by Capt. Brower, burned to the water's edge and sank at Ashland last week. The loss is \$15,000, with no insurance.

The Frontier elevator in the Blackwell canal at South Michigan street, Buffalo, is again receiving grain. The first vessel to unload was the Duluth.

The steamer Haddinston recently completed at the yard of the Bertram Engine Works Co., Toronto, will be managed by Mr. J. T. Mathews, Toronto, Ont.

Captain Ed Grasser of Toledo has lately given the Irene, his new auxiliary boat, a trial spin. She gives promise of being one of the fastest 35-footers on the lake.

The Dominion Coal Co. has in contemplation the building of steel steamers capable of carrying 1,500,000 to 2,000,000 tons of coal during the seasons of navigation.

While dredging out the channel at Ellicott creek, Tonawanda, the state mud dredge sprung a leak and sank in the channel. The dredge will be raised at once.

Johnston Bros., Ferrysburg, Mich., have been awarded the contract for building a small lightship for the ninth light-house district for service on Peshtigo reef, Green bay.

Walter Seidmann, dock agent for the Goodrich line at Sturgeon Bay, has been promoted to traveling freight agent, filling the position made vacant by the retirement of Joseph Lavassori.

The city council at Lorain has passed an ordinance changing the city dock line along the Black river to provide room for a turning basin large enough to accommodate a 600-foot ship.

The canal boat, Pan-American, owned by Edward Wence, loaded with a cargo of jute butts, burned and sank at the Erie street bridge, Buffalo, on Aug. 3. The damage amounts to \$1,500.

The training ship Essex of the Toledo naval reserves has finished her journey of 2,000 miles from salt water. She will be given a general overhauling before being put into commission in the fall.

Bids were opened this week by Capt. Chas. L. Potter, government engineer at Duluth for building a vessel yard at Duluth. The Whitney Bros. Co. of Superior, Wis., were the lowest bidders at \$16,671.

The steamer James H. Reed of the Provident Steamship Co. is in dry dock at the head of the lakes for repairs. Thirty plates must be removed and more than half will have to be renewed. Repairs will cost about \$30,000.

A new chart in colors of the east coast of Lake Huron from Port Elgin to Cape Hurd, including the southern portion of Georgian Bay off Parry Island, has just been issued and is now on sale by the Marine Review.

The United States has acquired the McMillan yacht slip near the foot of Chene street, Detroit. The consideration was \$15,000. The vessels under the direction of United States Engineer Davis will make the slip their headquarters.

The first canal boat ever cleared from the Tonawanda over the Erie canal with a cargo of pig iron and lumber was cleared Aug. 6. The boat was the Flammery & Baker. She carried 130 tons of pig iron and 100,000 ft. of lumber stock.

Capt. J. R. Innis, superintendent of the Michigan Central car ferries, has fitted out a little steam yacht for use in the transport system. The craft can do 16 miles per hour and will carry twenty persons. She has been christened J. R. I.

The first lumber boat of Detroit to go into ordinary is the barge Kelly of the Kotcher fleet. She will be tied up in accordance with the action of the Lumber Carriers' association in ordering 100 of the 300 vessels enrolled out of commission.

Work has been formally begun on the big dredging contract, which Dunbar & Sullivan secured for lowering the channel at Amherstburg reach, running from the Lime Kilns to Bar Point. The contract was for nearly \$1,000,000. The work will require three years for completion.

The secretary of the Buffalo Launch Club, Roger F. Williams, announces a handicap race of power boats to be run for a silver cup put up by H. T. Koerner. The race will take place

on Aug. 30 from 3 to 4 p. m. The boats will leave Black Rock harbor at 1 o'clock for Koerner's dock, Grand Island.

Scaled bids will be received by the city controller at Port Huron, Mich., until Aug. 15, 1904, for the furnishing of all material and labor for the uncompleted portion of the canal from Lake Huron to Black river, as per plans and specifications and contract of the Cuyahoga Contracting Co.

It is reported that Col. Chas. E. L. B. Davis, government engineer in charge of the Detroit district, is keeping tab on steamers that are making the passage through the St. Clair Flats canal faster than that allowed by the government and that some of the boldest of offenders are likely to be arrested therefor.

President James O'Neil of the Linemen, Firemen and Seamen's union, was summoned from Chicago to settle a dispute between the dredge owners and employes at Toledo. The men demanded extra pay for the hour spent in the morning getting the boats ready. The matter was compromised by allowing the men a half hour overtime.

Anthony T. May, owner of the steamer Emerald, has filed a libel against 480,000 ft. of pine lumber, the cargo of the Emerald. He claims that on July 12 last he contracted with the Parker Chartering Co. of Detroit to carry the lumber for John Godkin from Seul Choix, Mich., to Tonawanda for \$2.25 per 1,000 ft. He says the freight charges have not been paid and now asks damages.

Only six licenses were issued by the Duluth inspectors of steam vessels during July. Previous to 1897 licenses were issued every year but since then they have only been issued every five years. Samuel Chateau and Darwin E. Stevens had their certificates renewed as first class pilots. Paul Marschalk and Chester A. Massey were given licenses as second class pilots. Frederick Erickson had his license as joint pilot and engineer renewed and John E. Peterson was given his first license of the same kind.

The new steamer Caribou has just been delivered to the Beach Line from the ship yard at Goderich, Ont., and has just been placed in commission between Sault Ste. Marie and Port Caldwell, Ont., and all intermediate points on the north shore of Lake Superior. The Caribou is modern in every respect, with commodious state rooms, large cabins and an attractive dining-room. She is in charge of Capt. James Ganley, one of the most popular captains in the service. Nowhere on the great lakes can more be offered nature-loving tourists than the north Lake Superior shore, and it is expected that the new route will be much patronized.

The loss involved by the burning of the Michigan Central grain elevator, the property of the United Grain Co. of Toledo, last week is estimated at from \$175,000 to \$200,000 and was fully covered by insurance. The building was 168 ft. in height, about 100 ft. in length and about 70 ft. in width; it had a capacity of 350,000 bushels and at the time of the fire contained about 150,000 bu. of corn, and between 75,000 and 100,000 bu. of oats. A. L. Mills is president of the company and L. F. Churchill and F. O. Paddock vice presidents. The big elevator was situated on the Michigan Central road about one-half mile west of the entrance to Walbridge park. The original cost of the plant was \$75,000 but later improvements were made to the extent of \$35,000.

The deal of the Detroit & Buffalo Steamboat Co. for new terminal facilities, the finest in Buffalo, was completed Aug. 1. The new terminal is located at the foot of Erie street, near the entrance to the harbor, and is only a short distance from the New York Central and West Shore depot. It is also very near the Delaware & Lackawanna docks, which will be of material benefit in building up a through passenger and freight business with the east. The property has a frontage of 428 ft. and a depth of 300 ft. About 200 ft. of the old breakwater will have to be torn away, but permission has already been obtained. The location of the new terminal will

cut the time a half hour each way, and will do away with towing by tugs. Mr. Hendrie will probably be president of the terminal company. W. C. McMillan, A. A. Schantz, James McGregor, D. C. McIntyre and D. C. Wilder will compose the remainder of the company.

The steamer City of Berlin with the barge Aurora in tow, down-bound, collided with the steamer Chili, up-bound, off Windmill Point Sunday. From what can be gathered the Berlin and Aurora were following in the wake of another steamer, when the Chili attempted to pass between the latter and the Berlin. Through some miscalculation the bow of the Chili struck the port side of the Berlin causing the injured boat to swing around from the impact and to be rammed again and again. Capt. Frank Goodrill, master of the City of Berlin, realized that his vessel was sinking and made for shallow water. It proved, however, that the steering gear was disabled and all she could do was to drift helplessly until the lower end of Belle Isle was reached when she sank. The crew escaped in the yawl. The Chili was not seriously injured and proceeded on her way to Chicago. The Berlin is owned by Henry Weiman of Detroit and carried a cargo of iron ore shipped by Corrigan, McKinney & Co. of Cleveland.

Tides of the ocean are the result of the unequal attraction of the sun and moon on the earth's surface as compared with its center. As the proportionate difference on account of its lesser distance is greater in the case of the moon, its tide-raising influence is rather more than twice as great as that of the sun. Visitors to the lake region may not be aware that the inland seas have tides which follow the moon with even more precision than the open ocean. The water in the lake rocks as though it were a solid mass, but slowly, the surface changing its level as the meridian of the lake alters its direction with regard to the moon. It requires, however, minute observation to detect this tide. So small is it that the difference between high and low water in a lake 100 miles broad is a little more than an inch. In some of the lakes of Switzerland besides the semi-diurnal tide, phenomena have been observed, locally called seiches, in which the whole body of water rocks or vibrates in twenty minutes or a half hour. The British lakes are too small for similar phenomena to be easily perceptible.

The annual report of Lieut. Col. E. L. B. Davis, government engineer at Detroit, has just been made public, and shows an interesting amount of information. The most important item is the construction of the Hay Lake and Neebish canal at the Sault, which is now in process of erection at a cost of nearly four million dollars. To date \$2,738,081.39 has been expended on the project. The next item of most importance is the amount allowed for the clearing of wrecks. For disposing of the wrecks of the steamer T. D. Stimson and the schooner Champion in the St. Clair river, and the steamer John N. Glidden in the St. Clair canal; the amount of \$43,086.79 was expended. The report says that the wreck of the steamer Minnesota is being cleared from the St. Clair river by the Canadian government. The reports show that shoals have been removed in the following instances: At the mouth of the Black river, Stag island, St. Clair middle ground, Arthur House shoal and Squirrel island. Partial shoals have been removed at the foot of Lake Huron, and at the lower approach of the St. Clair flats canal. The amount dredged from this district was 428,086 cubic yards. Another improvement was the widening of St. Mary's river at the Mud Lake angle and at Sailor's Encampment. In the latter instance there was an added width of 100 ft., with a depth of 21 ft. The figures show that 34,074,437 tons of freight valued at \$49,405,014 passed through St. Mary's river section. About 46,817,245 tons passed through the Detroit river. The report adds that the shortage in the amount of freight carried in 1904, under that of the year previous was largely due to the Masters' & Pilots' strike.

COMMERCE OF SAULT STE. MARIE CANAL.

The report of Sault Ste. Marie commerce kept by the superintendent of the canal shows a greatly reduced movement up to Aug. 1 of the present year. While last year 17,224,362 tons of freight were moved up to Aug. 1 last year, only 9,198,203 tons were moved up to Aug. 1 of the present year, a decrease of 8,026,159 tons. The total movement through the canal during July was 5,609,079 tons which, of course, is heavy movement for a single month. The falling off of shipment is, as is well known, due to the late opening of navigation which did not begin this year until June 15 owing to trade conditions and the strike of the Masters and Pilots' association. Following is the summary of Sault Ste. Marie commerce brought up to Aug. 1:

Movement of Principal Items of Freight to and from Lake Superior.

ITEMS.	To Aug. 1 1904	To Aug. 1 1903	To Aug. 1 1902
Coal, anthracite, net tons.	359,768	431,165	105,228
Coal, bituminous, net tons.	1,208,211	3,137,871	2,197,418
Iron ore, net tons.	4,963,739	11,191,907	11,594,239
Wheat, bushels.	15,699,162	25,576,276	28,937,384
Flour, barrels.	1,075,100	3,173,240	3,607,437

Report of Freight and Passenger Traffic to and from Lake Superior, from Opening of Navigation to Aug. 1 of Each Year for Three Years Past.

EAST BOUND.			
ITEMS.	To Aug. 1 1904	To Aug. 1 1903	To Aug. 1 1902
Copper, net tons.	81,033	43,945	54,362
Grain, other than wheat, bushels.	7,278,334	9,959,467	4,066,108
Building stone, net tons.	4,227	4,590	20,081
Flour, barrels.	1,075,100	3,173,240	3,607,437
Iron ore, net tons.	4,963,739	11,191,907	11,594,239
Iron, pig, net tons.	13,317	4,194	7,396
Lumber, M. ft. B. M.	343,016	423,375	495,551
Silver ore, net tons.	919		
Wheat, bushels.	15,699,162	25,576,276	28,937,384
Unclassified freight, net tons.	39,912	87,651	46,870
Passengers, number.	7,053	15,401	15,117

WEST BOUND.			
Coal, anthracite, net tons.	359,768	431,165	105,228
Coal, bituminous, net tons.	1,208,211	3,137,871	2,197,418
Flour, barrels.		30	
Grain, bushels.	625		60
Manufactured iron, net tons.	46,762	65,173	64,864
Salt, barrels.	169,258	208,674	251,021
Unclassified freight, net tons.	201,451	233,574	277,380
Passengers, number.	7,798	15,478	15,723

Summary of Total Freight Movement in Tons.

	To Aug. 1 1904	To Aug. 1 1903	To Aug. 1 1902
East bound freight of all kinds, net tons.	6,356,699	13,321,614	13,886,984
West bound freight of all kinds, net tons.	2,841,534	3,869,748	2,681,915
Total freight, net tons.	9,198,203	17,224,362	16,568,899

Total number of vessel passages to Aug. 1, 1904, was 5,419, and the registered tonnage, 6,746,745

FREIGHT SITUATION ON THE LAKES.

Vessel interests maintain that the improved conditions of trade noted in the newspapers are not reflected in lake trade. July shipments of ore were a disappointment. It was expected that they would exceed the shipments of the corresponding month last year, but when the figures were in it was found that there was a decrease of 191,879 tons or 4.69 per cent. The total shipments during July were 3,895,835 tons, as against 4,087,714 tons for July last year. The total shipments of the present year to Aug. 1 have been 5,604,412 tons, as against 12,325,643 tons for last year, a decrease of 6,721,321 tons. This decrease is, of course, to be attributed to the late opening of navigation.

Those best informed in the iron trade do not think that the August shipments of ore will reach the shipments of August of last year, which were approximately 4,000,000 tons. Granting however that the shipments will average between 3,500,000 to 4,000,000 tons during the next three months and allowing 2,000,000 tons for November the season's total will be from 16,500,000 to 17,000,000 tons. This is equal to the movement

of ore after June of last year but it does not operate especially to the advantage of the vessel owner as dispatch is considerably better than it was last year.

Moreover, only the better grades of ore are being moved as in slack times furnaces only use those ores from which the greatest profits may be extracted. For instance, the Steel Corporation is confining its shipments exclusively to the port of Conneaut which makes the business of that port the heaviest in years, but of course at the expense of those subsidiary plants of the corporation which are not fed over the Conneaut docks. This year will undoubtedly be a lean one for the vessel owners and the sum of the year's business in all trades will probably not be large. This, however, is merely a repetition of ordinary business experience in a presidential year.

COAL RECEIPTS AT MILWAUKEE.

Coal receipts at Milwaukee for July show a great increase over receipts for the same month last year. The figures are 430,812 tons as against 302,726 tons for last year. Following are the receipts for the first seven months of 1903 and 1904:

Month.	1903.	1904.
January	10,203	25,881
February	13,427	8,019
March	33,240	16,304
April	136,329	11,140
May	312,446	22,093
June	410,082	328,461
July	302,726	430,812
Totals	1,219,153	843,710

Secretary Metcalf, Washington, has established the following schedule of salaries for local inspectors of steamboats throughout the country during the present fiscal year: \$2,500 for each inspector in the New York district; \$1,200 for each in the districts of Dubuque, Iowa; Evansville, Ind.; Louisville, Ky.; Memphis, Tenn.; Nashville, Tenn.; Cincinnati, O.; Gallipolis, O.; Wheeling, W. Va.; Burlington, Vt.; Bangor, Me.; Galveston, Texas; Jacksonville, Fla.; and Apalachicola, Fla.; \$1,500 each in New Haven, Ct.; New London, Ct.; Savannah, Ga.; Charleston, S. C.; Pittsburg, Pa.; Marquette, Mich.; Port Huron, Mich.; and Toledo, O.; districts; \$1,800 each in Providence, R. I.; St. Louis, Mo.; Oswego, N. Y.; Portland, Me.; Detroit, Mich.; Mobile, Ala.; and Portland, Ore.; \$2,000 each in Albany, N. Y.; Chicago, Ill.; Grand Haven, Mich.; Milwaukee, Wis.; Cleveland, O.; Norfolk, Va.; and Duluth, Minn.; \$2,250 in Philadelphia, Boston, Baltimore, Buffalo, New Orleans, Seattle and San Francisco.

The papers of Capt. Patrick Griffin of the steamer Western Star were returned to him Aug. 4 by the United States inspectors at Detroit. Capt. Griffin took the Western Star from the ship yards at Wyandotte, where she was launched this spring, to Cleveland shorthanded. Capt. William Pardo, W. Ashley and Fred A. Saunders preferred charges against him at the United States customs office and made charges at the inspector's office. Griffin was fined \$500. His license was taken from him July 15.

The Richelieu & Ontario Navigation Co of Toronto has begun running its steamers on Sunday excursions on the St. Lawrence thus casting aside customs of 40 years' standing. This is on account of the business conditions existing. It was only this spring that Canadian officials ordered the Welland canal opened for the passage of vessels on Sunday.

The Racine Boat Mfg. Co., Muskegon, Mich., has been recently newly capitalized at \$250,000.

Merchant Marine Commission.

Tacoma Wash., July 30.—The Merchant Marine Commission spent two days in Tacoma, during which representative shipping men and others who have devoted time and thought to the question of the extension of American shipping on the high seas appeared before the commission and represented able arguments in favor of a shipping subsidy. While there was perfect unanimity of opinion as to the necessity of remedial legislation being necessary if American bottoms are to be utilized for American cargoes, there was the usual diversity of opinion concerning the form that proposed governmental aid should take. Tacoma shipping men were unanimously of the opinion that the rehabilitation of the American merchant marine should be achieved through a subsidy rather than differential duties, the plan that found such warm and influential support in the east. The Tacoma hearing differed from other hearings in two features: First, the subject of text and statistics furnished by witnesses here dealt almost entirely with local conditions, while in the east and middle west the basis of all suggestions, or practically all, was the system of foreign subsidies. Second, emphasis was laid on the fact that a subsidy that did not protect the American sailing vessel and the steamships that steam from twelve to sixteen knots per hour would be practically useless to the shipping interests of the Pacific coast, as in these classes of freight carriers is done a large percentage of the import and export trade on this coast.

The hearings in Tacoma developed another interesting point. The witnesses were unanimously in favor of the abandonment of the American army transport service, and the letting of all government transport business out to private steamship companies on a competitive bidding plan. That the congressional commission on merchant marine presents an anomaly and is paradoxical in the bargain was conceded by Senator Gallagher. It was pointed out that a congressional commission is making an investigation for the information of the congress of America for the purpose of determining what legislation, if any, is necessary for the development of the merchant marine of the nation, and at the same time the government is in direct competition with American shipping, the shipping that the commission seeks to strengthen and perpetuate. In other words, the nation is taking business away from private persons, firms and corporations, and at the same time is seeking a means to prevent the loss of American shipping. "Support home industries" does not appear to be the motto of the government in the matter of its shipping, suggested witnesses.

Among the number of witnesses that gave testimony before the commission were the following: United States Senator Addison G. Foster, Congressman Francis W. Cushman, J. S. Whitehouse, secretary of the Tacoma chamber of commerce; Louis W. Pratt, editor of The Tacoma Daily Ledger; J. J. Donovan, of Bellingham; Henry L. Petterson, agent of the Tacoma Sailors' union; Captain Thomas W. Garlick, master of the steamship Tremont; Henry Hewitt, a capitalist of Tacoma; C. S. Eaton, a lumber manufacturer, representing the Olympia chamber of commerce; Captain T. S. Burley, representing the Tacoma Tug & Barge Co.; C. W. Wiley, marine manager of the Boston Steamship Co.; Captain J. N. Ross, of the collier San Mateo; O. J. H. Swift, deputy United States shipping commissioner; Capt. John W. Barr, and David W. Evans, proprietor of a sailors' boarding house.

TESTIMONY OF CAPT. T. W. GARLICK.

Some startling testimony was adduced by Capt. T. W. Garlick, who was called as an expert witness to testify concerning the cost of operating steamships with Asiatic seamen and firemen compared with the cost of operation with white

crews. Capt. Garlick stated that to operate with all white crews would cost more than six times as much as the cost of operation by Asiatics, and that the cost of subsistence for Asiatics was six times less than the cost of subsistence for white men.

Senator Gallinger interrogated the witness to inquire what would the effect be if congress enacted a law compelling American vessels to ship only white crews.

"The effect would be to put us out of business. The owners could not afford to man their ships with American citizens," said he.

It was pointed out by the witness that the wages of Asiatics, seamen and firemen, were \$6 gold per month; the wages of Americans were \$35 and \$40 per month respectively. The cost of subsistence for a Chinaman was about \$3 per month, for a white man \$18.

Interrogated further, Capt. Garlick stated that in his opinion American shipping is sufficiently handicapped by the keen competition with foreign bottoms that it has to meet without congress putting an additional handicap on it in the form of a compulsory law excluding Asiatics from shipping as crews.

Tacoma is deeply interested in the inquiry as to what can be done to re-establish the American merchant marine. Tacoma encouraged the granting of liberal contracts for carrying the mails, transporting government troops and supplies, and subsidies for the privilege of taking over the vessels as auxiliary cruisers or transports if required in case of war. Tacoma's exports for the last six months were almost as large as Portland's and Seattle's combined. No port in the United States is more favorably situated both with reference to the source of supply and access to foreign markets for lumber than Tacoma and the other manufacturing points in the Puget sound district. No matter what form of subsidy is adopted Tacoma is vitally interested in the result.

Having sat in Seattle before coming to Tacoma, the commission heard both sides of the story of rivalry between the two cities. Mr. Louis W. Pratt in a brief address laid special emphasis upon Tacoma's commerce.

Extension of the coastwise laws to the Philippines was also advocated by one witness before the commission. A reduction of the duties at both ends of the line was coupled with this suggestion.

Another suggestion made before the commission here was that the form of subsidy adopted extend over a long period of years, giving full consideration to the distance cargoes are to be carried, regardless of the speed or size of the vessels. Every suggestion put forth in Tacoma had in view the present and prospective commerce of the Pacific ocean.

United States Senator J. H. Gallinger presided at the hearing, and the following members of the commission were present: Representative Thomas Spight, Mississippi; Representative Edward S. Minor, Wisconsin; Representative Will E. Humphrey, Washington. Winthrop L. Marvin, Boston, secretary of the commission, was also present.

SENATOR FOSTER'S ADDRESS OF WELCOME.

United States Senator Foster, in his address of welcome to the commission, said:

"We are glad to have you with us today, and we welcome you heartily. We realize that there is a growing demand throughout the country for some kind of congressional action that will stem the tide which is leaving our American merchant marine at the mercy of foreign subsidized and cheap labor competition and therefore preventing our flag from going with our commerce to the far and near corners of the globe. It is gratifying to know that the Pacific coast will show to you, gentlemen of this convention, that it is fully as

much interested and alive to the issues as are the shipping interests of the Atlantic seaboard. With our American bottoms carrying less than 10 per cent of our foreign commerce, no wonder there is an earnest demand that something should be done. No doubt, this commission, in its wisdom, and after patiently hearing all sides and all classes of people who are vitally interested in this important subject, will be able to formulate a report to congress upon which a satisfactory line of action may be based.

"The gentlemen of Boston, who wrote to all parts of the country on this subject, learned that out of a total of twenty-two who answered their questions on the Pacific coast, twenty-one favored action on this proposition, while one favored inaction. In other words, twenty-one declared for some kind of aid to our merchant marine, and 'one' opposed granting assistance. Out of a total of 703 answers from all parts of the country, it is reported that only twenty-nine were opposed to some kind of aid to shipping, six of these coming from the middle west and New England, respectively, nine from the south, seven from the Middle States and one from the Pacific coast. As to whether we shall extend aid through direct subsidies, the mail subsidy plan, export bounty, or rebates, remains to be seen. But, gentlemen, so long as we have a protective policy in this country, thereby putting the wages of your artisans and workmen in advance of all the world, we must in some way, include our shipping under this system of protection to American industries, or capital will not invest in the doubtful or losing project of attempting to keep the flag of our merchant marine alongside of our commerce in foreign ports.

"That the spirit of home pride and patriotism may be injected into this project, it is urged by some that our policy shall be one of, in American ships, built by and owned by Americans, and manned by American sailors, who shall, at the same time, constitute our naval reserve. To sustain this policy, or whatever plan is agreed upon, congress, representing the people, will have to put its shoulder to the wheel. And congress, as a general thing, merely indicates which way the wind blows; therefore, the question is, 'What do the people want?'

"We know that England, Germany and Japan, in particular, are aggressive in the policy of building up their merchant marine. It is estimated that the Canadian Pacific and the Japanese lines, operating on this North Pacific coast, have received approximately \$1,000 a day for every working day in the year in the way of subsidies. We, of this port, know how French ships benefit by subsidy regulations of this nature. Our shippers have daily object lessons in the details of this great question, and, while they may not all agree on a line of action, still, all will admit that, under existing conditions, capital will not seek to invest in American shipping. They know that under the prevailing conditions, ships can be built in foreign yards from 25 to 40 per cent more cheaply than in this country, where the protective system insures higher wages for our labor and higher prices for materials. And in the final analysis, labor constitutes the bulk of the cost items in this line of industry, or, indeed, in most others. Where foreign bottoms have been placed under the stars and stripes in our ports, we know that the American standard of protection wages has followed. We know how it works. And, too, we know, or should realize, that if we are to enable our ship owners and ship operators to readily pay our American sailors proportionately as high a scale of wages as other workmen receive in other lines of American industry which benefit by our system of protection, we must in turn extend to them some measure of the American protection.

"We send immense quantities of our farm products and a large share of our manufactured goods into foreign ports, but under the prevailing system it is generally more advantageous

for our shippers to hire foreign ships and foreign sailors to carry our foreign ocean freight. We send our American locomotive anywhere and everywhere, and our American ships practically nowhere, except to the boneyard. Regular lines of American ships would build up American institutions. American merchants would follow these regular lines throughout the world, just as, under similar conditions, English, German and Japanese merchants follow the flag of their respective merchant marine. Then, too, it is comforting and satisfying to know that we own and control the boat that carries us. Suppose we needed, in an emergency, a large number of transports? What then? Suppose Japan had no ships available in her war with Russia? She would be like a man overboard who could not swim. You all recall our own predicament a few years ago, when we had a few thousand troops, a mere handful, to transport over the sea. What a scramble there was! How appalling the condition if we were called upon to handle troops in large numbers in a really serious conflict!

"In order to do business successfully in foreign ports, merchants must be able to contract in advance for the delivery of their goods. This can only be done satisfactorily by regularly established shipping lines. Shippers cannot depend on tramp steamers altogether. This is shown to be true on the heavy trade channels between England and Germany, to the Orient, where the regularly established liner does the business. The tramp sails when he has a load. The regular liner takes what the shipper offers and sails on schedule time. And, as a rule, the freight charges in the regular liner are no greater than by the tramp that goes at its convenience, and not when the shipper demands."

PAPER BY MR. J. S. WHITEHOUSE.

One of the ablest papers was read by J. S. Whitehouse, secretary of the Tacoma chamber of commerce, as follows:

"In considering the present condition of the American merchant marine with a view of determining means to be adopted for its rehabilitation, we assume that you desire to know something of the present condition of commerce in the different localities you visit, as well as the prospective commerce of the different ports, and also to collect ideas and opinions from the different localities as to the means to be adopted to remedy the evils which now exist. Tacoma is the youngest of the maritime cities of the Pacific coast and of the United States. Some small shipments of lumber were made some twenty or thirty years ago, when this city was only a mill hamlet. Commerce, so called, practically began when, in 1887, the Northern Pacific railway was completed and Tacoma became a wheat shipping port. In that year there was shipped 1,195,000 bushels of wheat. This has now increased to 12,000,000 bu., and with the present large crop now being gathered in this state we anticipate that the returns for the season now opened will show a shipment of 15,000,000 bu. This is exceeded on the Pacific coast by San Francisco only. The shipments from San Francisco have been steadily decreasing for a number of years, for the reason that the wheat-growing land is becoming converted into fruit farms, and the production has long since passed its maximum. Therefore we believe that before another twelve-month has passed Tacoma will occupy the first place as a wheat shipping port of the Pacific coast.

"Tacoma made her first shipment of flour in 1890. There was shipped in that year 16,755 barrels, and this has steadily increased year by year until it now amounts to the enormous total of 1,310,000 barrels for the year 1903, of which amount 1,042,003 barrels was shipped foreign. This far exceeds the shipments of flour from any other Pacific coast port. In the year ending June 30, 1903, the district of Puget Sound shipped in wheat, and flour reduced to wheat, 17,860,000 bushels, standing fourth in the United States, being exceeded only

by New York, New Orleans and Baltimore, in the order named. In the year 1894 the lumber shipments had already reached a total of 55,000,000 ft. foreign and coastwise. For the calendar year 1903 130,000,000 ft. was shipped, of which 51,000,000 ft. was foreign.

"The total value of the commerce of the port of Tacoma, of merchandise of all kinds, including that mentioned above, for the years 1901-2-3, both foreign and coastwise, was as follows:

	1901.	1902.	1903.
Imports	\$11,495,859	\$12,544,865	\$13,335,398
Exports	22,904,877	27,886,800	21,861,972
Total	\$34,400,736	\$40,431,665	\$35,487,370

The foreign business only for the three years was as follows:

	1901.	1902.	1903.
Imports	\$ 2,555,804	\$ 2,312,321	\$ 2,597,634
Exports	12,261,112	19,091,491	12,419,805
Total	\$14,717,006	\$21,403,812	\$15,016,839

"In showing the important relative position the port of Tacoma holds in the custom district of Puget Sound, which includes all ports in the state of Washington, we quote the following official table, furnished by the custom collector of this district, for the fiscal year, 1903 (foreign only):

Port.	Imports.	Exports.
Port Townsend	\$ 63,268	\$ 2,703,771
Tacoma	4,209,730	10,648,886
Seattle	5,607,286	6,551,315
Everett	48,248	40,503
Bellingham	50,160	167,085
Blaine	277,827	574,488
Port Angeles	503	104,445
Northport	619,911	538,031
Roche Harbor	123	25,272
Aberdeen	6	258,854
Anacortes	3,270	33,502
Sumas	390,220	851,622
Danville	14,519	215,304
Friday Harbor		15,693
South Bend		27,632
Spokane	25	
Totals	\$11,285,096	\$22,756,403

"Tacoma's splendid achievement in this respect is partly due to nature, which blesses us with a commanding and magnificent harbor, and to the energy and foresight of the citizens who built factories and took full advantage of the great natural resources of the state.

"A significant fact in connection with the exports from this port is that they are constituted of the products of Tacoma factories, and products of the state of Washington, to a greater extent than are the shipments from any other city on the Pacific coast in relation to the state in which they are located. We have shipped immense quantities of lumber and flour manufactured in Tacoma mills, coal mined in this and contiguous counties, various kinds of manufactured lumber, such as doors, sashes, moldings, woodenware, furniture, boxes, shingles, etc.; products of the Tacoma smelter, the largest on the Pacific coast; car wheels, engines, beer, malt, castings, cereals, fish, trout, hops, etc.

"In order that no false impressions may be obtained from the shipments from the Pacific coast ports, we wish to state that the Japanese steamship line operating from Seattle, has a contract with the Great Northern railroad for the carrying of its Oriental freight, and in return it delivers its Oriental freight to that road. The same is true of the port of Tacoma

concerning the Boston Steamship Co. and the Northern Pacific railway, and of the Northern Pacific Steamship Co., owned and operated by the Northern Pacific railway, and necessarily co-operating with it. A transpacific line operating out of Portland has a like connection with the Union Pacific, and the lines operating out of San Francisco a like connection with the Southern Pacific. For this reason the different lines secure from the railroads all the freight originating in the interior on that railroad line, which they carry to the seaboard for transportation and no other steamship line can get it. If it were not that the Southern Pacific at San Francisco and the Northern Pacific at Tacoma had made combination with American bottoms instead of with foreign, or that they delivered their freight at the seaboard open to delivery by any line, we doubt very much if any transpacific line would now be operated under the American flag.

OWNERSHIP OF PACIFIC COAST STEAMSHIP LINES.

"Excluding California, all transpacific steamship lines plying to the Orient are foreign except only the Northern Pacific Steamship Co. (which sold its steamers a few months ago because they were too small for the business) and the Boston Steamship Co. As showing the interest Tacoma has in the matter under consideration, we would state that the Boston Steamship Co. brings its entire inward cargo to this port and takes from this port five-sixth of its outward cargo. Without any official knowledge on this subject, and repeating only current rumor, we would say that the Boston Steamship Co. lost money in its first year's business and the foreign boats made money. Since the first year, the Boston Steamship Co. has probably come out even, but not much more, and this is perhaps due to the fact that they have a contract with the government for the carrying of supplies and passengers to and from Manila. This contract not only furnishes a large amount of business itself, but puts the company in a good shape to carry cargoes from Manila and other Oriental ports to this port. In a word, we are confronted with the condition here, which, while more favorable to American bottoms than any other customs district, yet this condition is due to circumstances such as the contract with the railway and the contract with the government and this may change at any time, leaving the American bottoms in a position to lose money.

"The reason the foreign bottoms are in a more prosperous condition than the American bottoms is due to two well-known reasons: the excessive cost of construction of the American vessel, and the higher expense in operating them. In considering a remedy which will enable the American bottoms to earn a fair return on their investment, it is impossible to adopt by legislation any method to reduce the cost of construction or reduce the wages of the seamen even if this method were advisable.

"In considering the question of remedies, the present and increasing commerce of the Pacific ocean is the largest and most important to our eyes. We sometimes feel that the mental vision of our national legislators extends no further west than the Rocky mountains. If we grow at a much faster rate commercially and industriously than other ports in the union, those things which the government does for communities should be done here according to the demands of the business and not because it comes our turn, and still less because we have fewer representatives in congress.

"You have doubtless heard discussed methods to be employed to assist the American merchant marine to the limit of your patience. We suggest that whatever aid is extended, it be distributed over a long period of years rather than pay large amounts for a short period. The latter method would lead to the establishment of lines to obtain the subsidies only and possibly to their abandonment when the subsidy ceases. The subsidy recently granted by France by the terms of which they pay bonuses to the ships built in France and a subsidy

according to the distances carried, upon the cargo, has led to the unfortunate result: An immense number of French ships were built on account of the subsidy; they cut rates so low as to practically drive other ships out of business, but the French ship owners, now that the end of the subsidy period is approaching, have already asked the large ship operating firms on the continent to join them in the maintenance of a scale which is at least as high or higher than that which existed prior to the time their subsidy went into effect. If this subsidy had provided for the same total amount to be paid in a period of twenty years instead of five years, the benefit might have been obtained without the evil consequences.

"We believe, also, that the subsidy should give full consideration to the distance the cargoes are carried. The cargoes to and from the Pacific coast are carried more than twice the distance that the cargoes originating on the Atlantic and Gulf coasts are. It is also true, that for a long time, the commerce of the Pacific will be carried in freight boats, that steam from twelve to sixteen knots per hour. A subsidy to swift-going mail steamers would be of little benefit to us. The conclusions of the writer are that a subsidy to ships built in the American yards, paying a stated amount per ton of freight carried, increasing with the distance carried, regardless of the speed or size of the boat and extending over a long period of years applying to sailing vessels as well as steamships, and if the subsidy is in the shape of a mail contract, the speed required to not exceed sixteen or seventeen knots per hour, would be of greatest benefit to the present and prospective commerce of the Pacific ocean."

ADDRESS OF LOUIS W. PRATT.

Louis W. Pratt, editor of the Tacoma Daily Ledger, spoke as follows:

"After the exhaustive review of Tacoma's commerce that has been presented by Mr. Whitehouse, it is unnecessary for me to touch upon any of the points he has covered. I shall endeavor, therefore, to avoid any repetition of what he has said in regard to the ocean traffic of this port. You have perhaps noticed in this morning's Ledger some official figures, which show that Tacoma handles a larger share of the foreign trade of the Pacific coast than any other port except San Francisco. Tacoma's foreign trade for ten years from July 1, 1893, to June 30, 1904, amounted in value to \$121,652,289. This is exclusive of foreign merchandise to the value of many millions more which was brought to this port and transported in bond to interior ports, and credited as imports to those cities in the official customs reports. During the same period the total foreign trade of Portland amounted to \$105,593,572, and that of Seattle to \$84,911,055. You have visited our water front today and seen for yourselves the splendid facilities Tacoma possesses for handling ocean traffic, and are not surprised that this port is already the second seaport in importance on the Pacific coast. You saw this morning lying end to end at the warehouses a steamship from San Francisco, the Queen; next to her the Ramses, just arrived from Hamburg, after circling the continent of South America; next the Stentor, of the Blue Funnel Line, which operates between Tacoma and Liverpool by way of the Orient, Suez canal and Mediterranean route, and you went aboard the giant Tremont, an American-built steamship, which brought to Tacoma yesterday on her sixth return trip from the Orient and Manila a cargo of many thousand tons of foreign merchandise. These are representative vessels of some of the lines that are now regularly engaged in ocean commerce from this port.

"It may interest you to learn that during the year ending June 30, 1903, Puget Sound was the sixth district in the United States in the tonnage of American and foreign vessels entered and cleared. The leading districts in the tonnage engaged in the foreign trade were New York, Boston, Philadelphia, New Orleans, Baltimore, Puget Sound, San Fran-

cisco, Galveston, Portland, Me., and Pensacola, Fla. In ten years from 1894 to 1903 inclusive the Puget Sound district rose from twenty-first in the magnitude of its foreign commerce to ninth among the customs districts of the United States.

"You are here to investigate the facts regarding our ocean commerce and to report what, if anything, can be done to increase the American merchant marine. The fact is that a larger share of Tacoma's foreign trade is now handled in American vessels than at most of the leading ports. But Tacoma sends out hundreds of cargoes of wheat and lumber in sailing vessels every year and in the foreign branch of this trade there are few vessels of American register. It is a fact that within the last three years two or three "windjammers" have been built on the Puyallup river flats in this city and have taken lumber cargoes from this port on their maiden voyage."

"How recently?" inquired one of the commission.

"I do not think any vessel of this description has been built at Tacoma for at least eighteen months. Since that time several wooden steamboats have been built here to enter the coastwise trade, such as the Jefferson, which just made her first trip to Alaska. But some sailing vessels have been built here within three years and one of them, the T. P. Emigh, took a cargo of lumber from the St. Paul mill to Australia on her maiden voyage in February, 1903, seventeen months ago. I do not know what to suggest as an encouragement to American wooden ship building in the sailing class. Years ago they sailed all over the world under the American flag, and the day of the sailing vessel has not passed yet, as one may be sure from the evidences that are presented here. I have counted fifteen sailing vessels loading lumber at one time at the Tacoma company's mill, and as many more grain carriers at anchor at once in our harbor.

"The question is, what can be done to increase the share carried in American bottoms? I can make one suggestion with entire confidence. We have a line of American steamships operating to the Orient and Manila. It secured through competition, more than a year ago, a contract for carrying government troops and supplies. Two of its vessels were remodeled at large expense to accommodate a regiment of troops. I have yet to learn that the government has ever sent a single company of soldiers by this line that holds the contract. It employs its own transports to carry freight and troops and the American merchant marine established between Tacoma and Manila gets little of the government patronage over the route. If the government is to give subsidies, why not give an American line its patronage instead of competing with it? The transport Dix came here last year to carry at least three cargoes of lumber to Manila. These cargoes might have been shipped by the line holding the government contract.

"I think also that the government should extend the coastwise laws to the Philippines and reduce still further the duties at both ends of the line. The coastwise laws will be extended to the Philippines July 1, 1906, and this is right, but it should come earlier. We are developing a good trade with Manila. Since November last the Boston Steamship Co. is bringing to Tacoma large cargoes of hemp. The Lyra brought the first cargo of hemp to cross the Pacific. Formerly it all went to Boston or New York in foreign ships through the Suez canal. The monopoly of the Philippine trade ought to help our American ships to pick up more trade in the Orient beyond."

Gov. Blanchard of Louisiana has selected Miss Juanita Lolland of New Orleans to christen the battleship Louisiana which will be launched at the yard of the Newport News Co., Newport News, Va., on Aug. 27.

TYPE OF ECONOMIZER FOR HIGHEST EFFICIENCY.

The two most essential qualities of a fuel economizer are its ability to utilize most efficiently for heating water a maximum amount of heat (otherwise wasted) from the escaping gases, and the accessibility of all surfaces for cleaning, repairing and

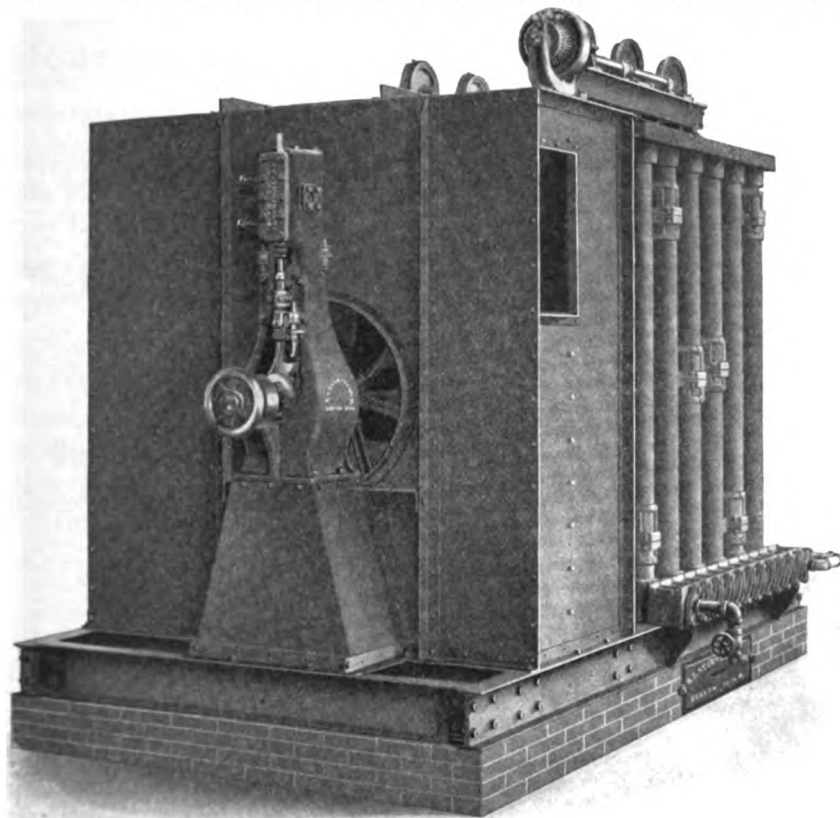
that the flow of water is started in the right direction and tends to keep the flow up and down the consecutive sections without making undue work for the pump.

The foundations required for these economizers are comparatively simple. This is due to the fact that the machines

are so constructed that the parts themselves contain the rigidity that would otherwise be required in the foundations. The fact that taper metal to metal joints are used also eliminates the necessity of building more rigid foundations, as there are no gaskets to loosen and leak if the foundations spring slightly.

Two general types of economizers are made by the B. F. Sturtevant Co., the "Standard" and "Pony." The "Standard" is built in sections containing pipes from four to twelve wide, the staggered system of pipes making it possible to build sections of an odd as well as an even number of pipes. The "Standard" economizer is adaptable to power plants of almost any size, but is more commonly used for boiler capacities of 350 H. P. and over.

The "Pony" type, as its name implies, is smaller than the "Standard" and is more adaptable to power plants of 350 H. P. or less. All machines are made of the best cast iron for the purpose. All parts are tested to 350 lbs. pressure before leaving the works and guaranteed to be sound and tight.

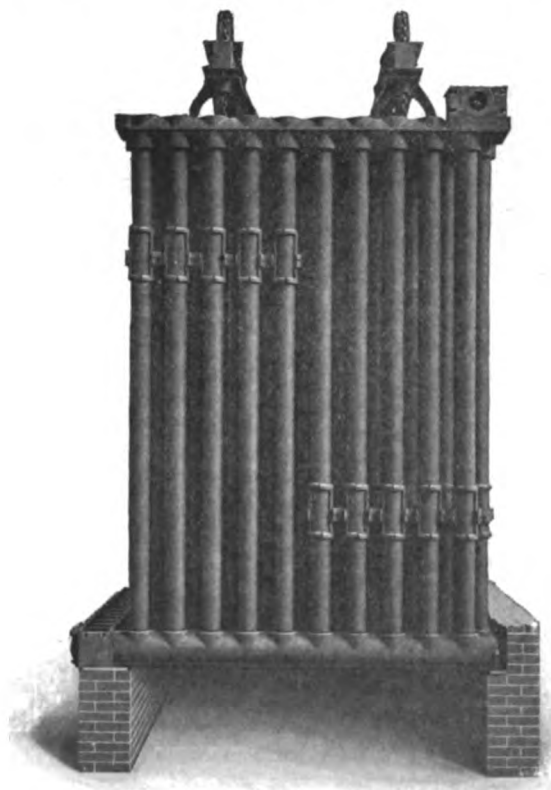


SPECIAL ARRANGEMENT OF STURTEVANT PONY ECONOMIZER WITH MECHANICAL DRAFT APPARATUS.

renewals. The Sturtevant "Standard" and "Pony" type economizers were designed to make possible these two requisites. These economizers utilize practically all the waste heat from the gases by a patent system of staggered pipes. This system compels all the hot gases to encircle the pipes, increasing the effective heating surface to a maximum. The gases are thus broken up and forced to give up their heat to the surrounding surfaces.

A fuel economizer must be accessible both inside and outside if it is to be a valuable adjunct to a power plant. To make this possible the joints of the Sturtevant economizer are made taper metal to metal, and are so designed that any pipe can be taken out and a duplicate substituted without disturbing any other pipe, section or side walls. This would not be possible if packing, cement or rusting were used to make tight joints. Any header can be withdrawn and a duplicate substituted without disturbing any other header, section or side walls. Any section can be withdrawn and a duplicate replaced without disturbing any other section or side walls. There are no connection pipes to remove and all water surfaces are rendered accessible by the simple removal of the caps.

The taper metal to metal joints make these economizers especially valuable for high pressures and are a marked improvement over gasket joints which spring and leak under such pressures. The scrapers are interchangeable and the driving mechanism positive in action. A guide plate for the scrapers is used to insure the scrapers' position and prevent them from sticking and breaking. The driving pulley can be belted up parallel or perpendicular to the length of the economizer. The Sturtevant economizers are not designed for forced circulation, but the connections are made in such a way



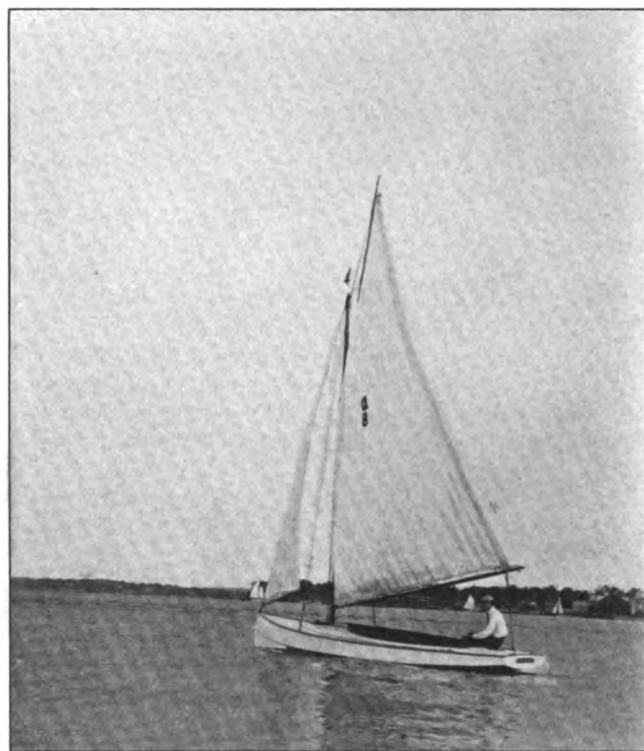
THE STURTEVANT STANDARD ECONOMIZER.

All parts are machined to special gauges and kept in stock so that duplicates can be furnished without delay. The several installations of the Sturtevant economizers have proven highly efficient. Not only has it been proved that the gases are reduced to a remarkably low temperature with a comparatively small amount of heating surface, but the water has also been heated to an exceptionally high temperature. In cases where the feed water contains foreign substances the owners have found these machines to be especially valuable owing to their accessibility and ease of cleaning.

An illustrated catalogue describing the Sturtevant standard and pony economizers is issued by the B. F. Sturtevant Co., Hyde Park, Mass., and is of interest to all steam users.

JEEBI'S REMARKABLE RECORD.

Mr. Thomas Clapham, Roslyn, Long Island, N. Y. has in the Jeebi a photo, of which is published herewith, designed a most extraordinary 21-footer in the open jib and mainsail class. In 1903 in ten races she won six firsts, two seconds, and



JEEBI; WINNER OF TEN RACES STRAIGHT.

one third. Remarkable as that record was she has done even better in 1904 for in all of the ten races in which she has competed she has won first prize in each.

The Jeebi is 23 ft. 10 in. over all, 17 ft. on the water line, 7 ft. beam, and 8 in. draught. She is owned by Arthur D. R. Brown of Flushing, L. I. As a racing record covering two succeeding seasons her achievements have not been equalled by any other boat.

Another remarkable thing is that not an item of Jeebi's rig or equipment has been in any way changed since she was launched with the sole exception of having been fitted with a larger spinnaker. In model the Jeebi is like a sharpie from her deck down to her bilge, which is angular. Below the bilge her bottom is of the Bouncer type, originally designed by Mr. Clapham in 1890, and since then copied and reproduced all over the United States. She was designed and built by Mr. Clapham for Mr. Brown to use as a pleasure boat as

well as for racing, and is so easily handled that often she is sailed by a young girl.

Last year she won the championship in the 21 ft. open jib and mainsail class on Long Island Sound in the regatta of the Long Island Yachting Racing Association. Following is the list of races sailed by Jeebi since she was launched:

Races sailed by Jeebi in 1903.

DATE	CLUB	FINISH POSITION OF JEEBI
June 6	Knickerbocker	First. Wins First prize.
June 20	New Rochelle	" " " "
June 27	Seawanhaka	" " " "
July 3	American	" " " "
July 4	Larchmont	" " " "
July 18	Riverside	" " " "
July 25	Hempstead Harbor	Fouled buoy
Aug. 1	Manhasset	Third
Sept. 15	Indian Harbor	Second. Wins second prize
Sept. 7	Larchmont	" " " "

Six First, two Second, one Third, in ten races.

Races sailed by Jeebi in 1904.

DATE	CLUB	FINISH POSITION OF JEEBI
May 30	Harlem	First. Wins first prize.
June 4	Knickerbocker	" " " "
June 11	Manhasset	" " " "
June 18	Larchmont	" " " "
June 25	Seawanhaka	" " " "
July 2	New Rochelle	" " " "
July 4	Larchmont	" " " "
July 9	Riverside	" " " "
July 16	Larchmont	" " " "
Aug. 6	Hempstead Harbor	" " " "

Ten First prizes, straight.

OBITUARY.

Lieut. James Wilkinson Clement, of the United States battleship Kearsarge, died at Trieste, Austria, on July 28.

Capt. J. A. Smith, at one time master of a vessel on the lakes, died Aug. 8 at Windsor. He was seventy-eight years old.

Capt. Joseph A. Criqui of Buffalo, a retired lake captain, died from injuries resulting from a fall last week. He was seventy-three years old and quit sailing about fifteen years ago.

Capt. Horatio B. Carver, who for many years has been connected with the shipping of San Francisco, died on July 18. He was a native of Maine but from pioneer days his interests were connected with San Francisco.

Capt. Lovedale, who for many years sailed schooners in the fleet of Hamilton & Merriman, died of injuries received a year ago on the schooner C. J. Magill, which he had bought when Hamilton & Merriman went out of the lumber trade. He was fifty-eight years of age.

PERSONAL.

Rear Admiral Newton E. Mason has been appointed chief of the bureau of ordnance.

Rear Admiral George A. Converse, chief of the bureau of ordnance of the navy department, was appointed this week chief of the bureau of navigation to succeed Rear Admiral H. C. Taylor who died last week.

Chas. E. and W. F. Peck, well known average adjusters and insurance brokers, have opened an office at Buffalo, at 906 The Fidelity building. Mr. Erle W. Stith, formerly connected with the Cleveland office, has been appointed manager of the Buffalo office.

H. B. Sturtevant, for many years a resident of Ishpeming in the employ of the Lake Superior Iron Co., recently gave up the superintendency of mines for the Pioneer Mining Co. on the Mesabi range to take charge of the properties of the Susquehanna Iron Co. His headquarters are at Hibbing.

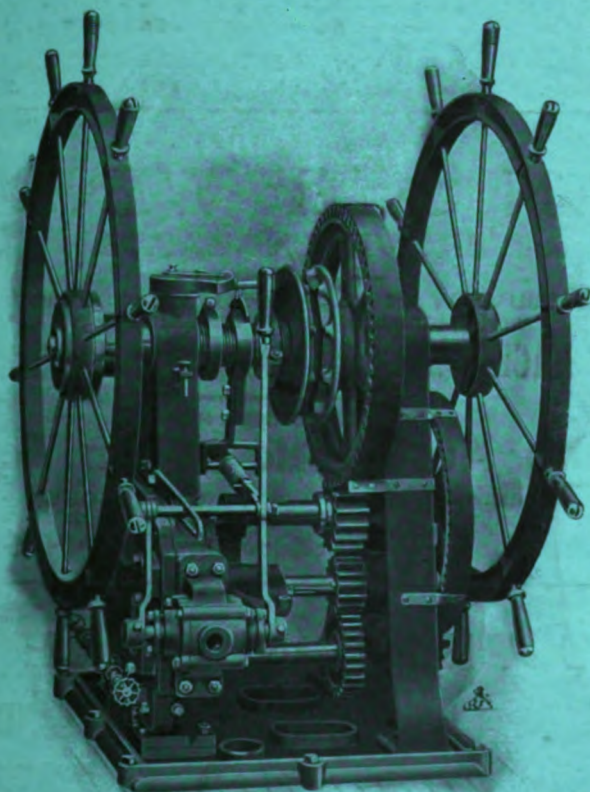


VOL. XXX.

CLEVELAND, O., AUGUST 11, 1904.

No. 6

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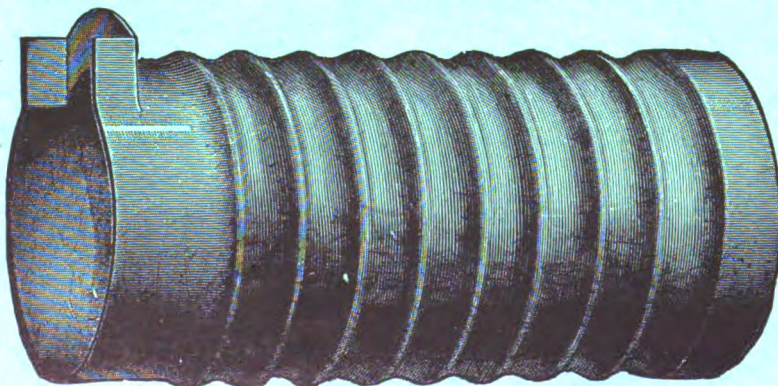
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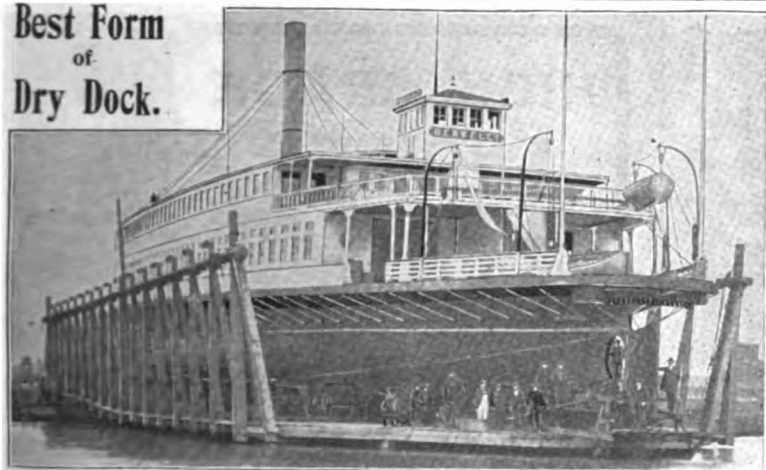
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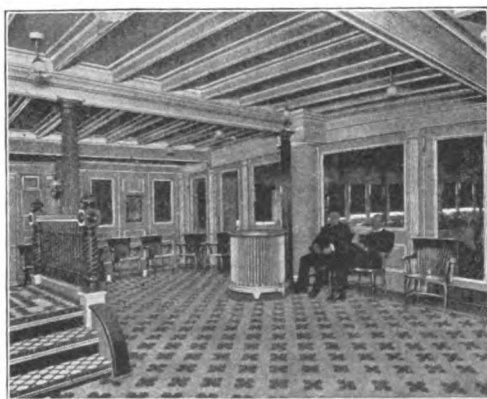


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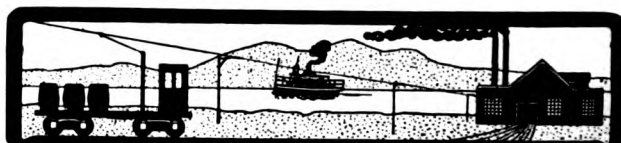
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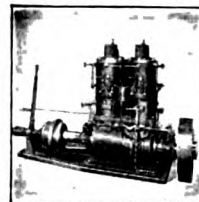
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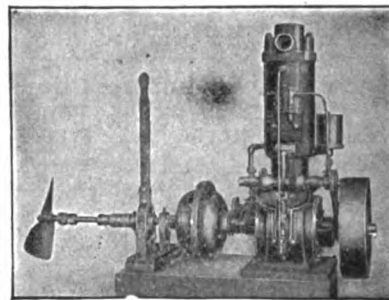
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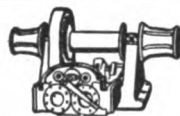
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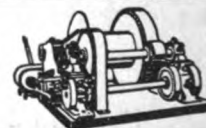
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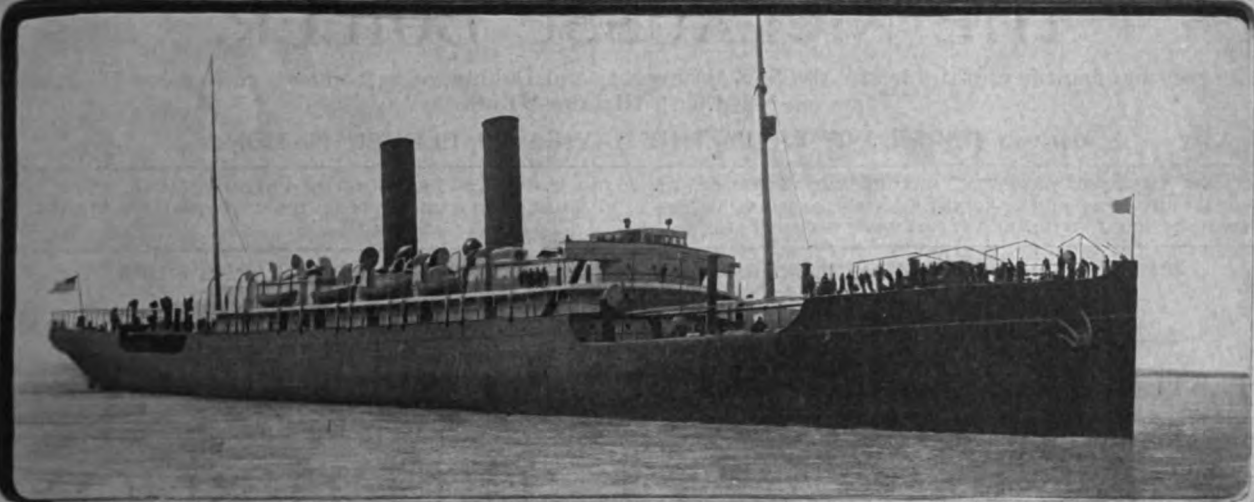
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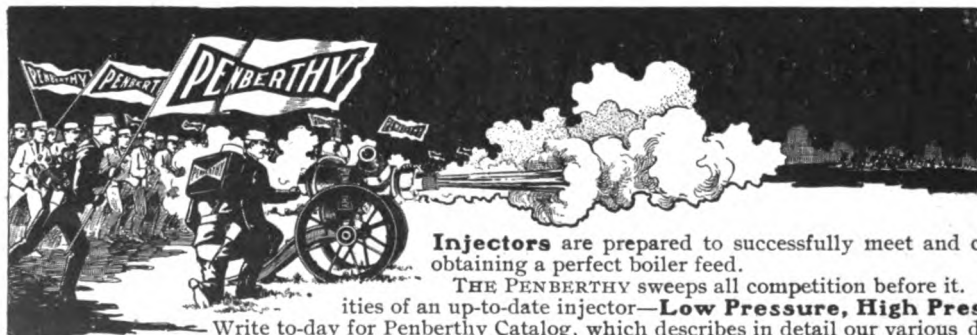
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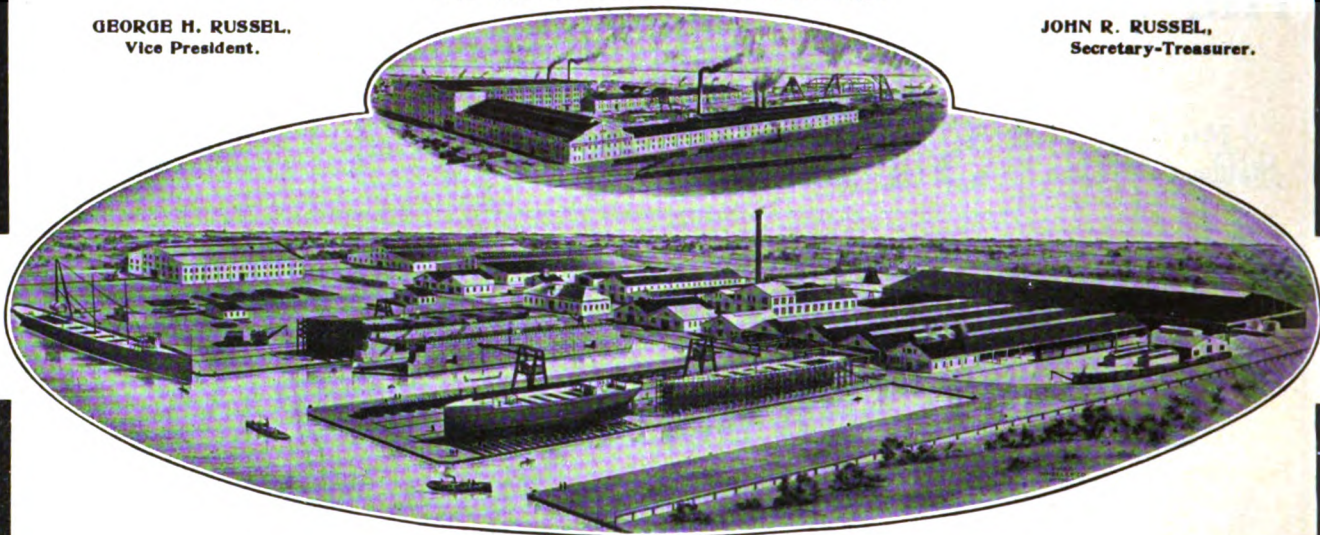
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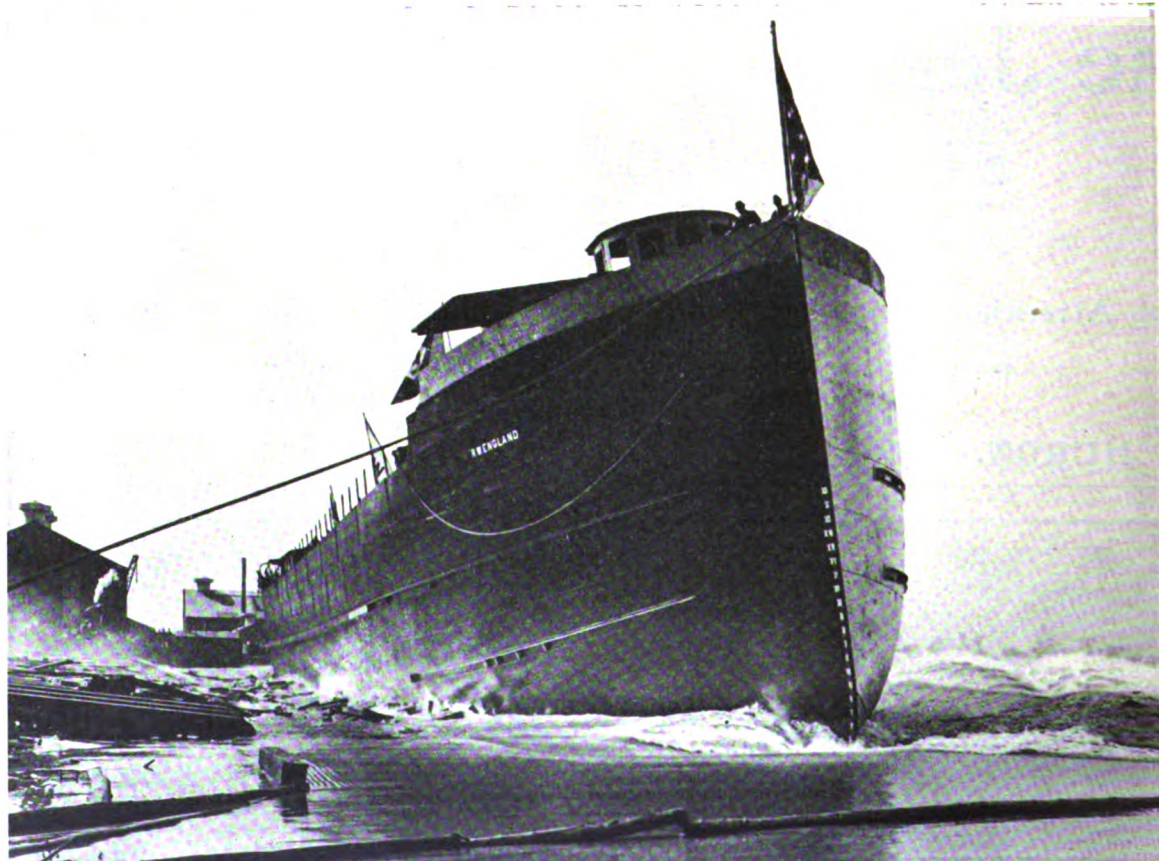
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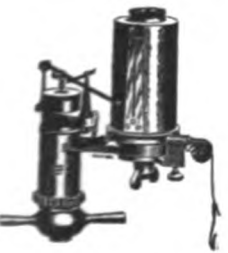
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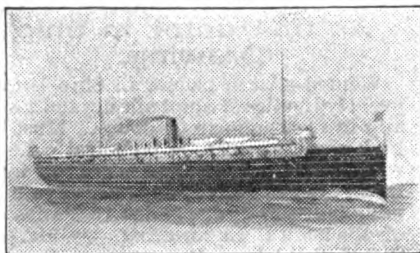
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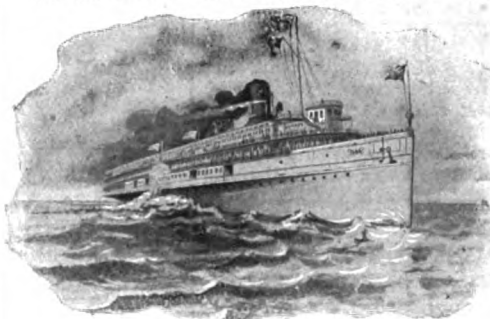
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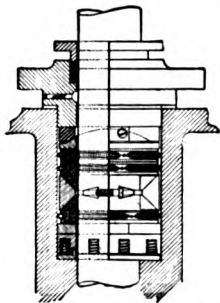
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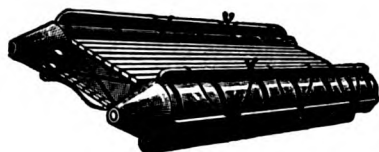
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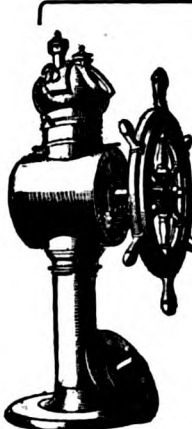
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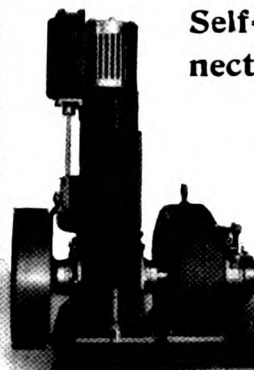
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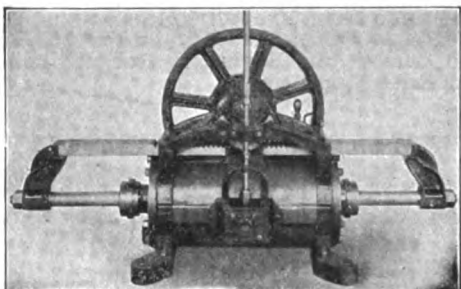
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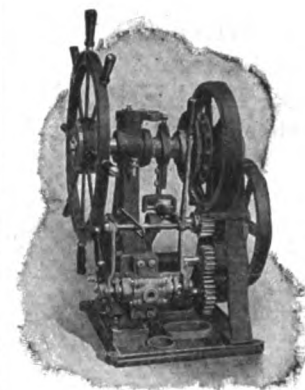
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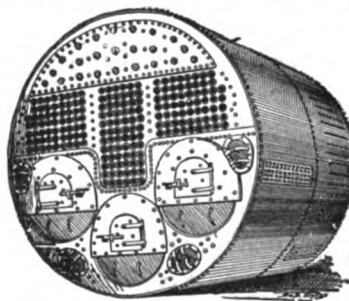
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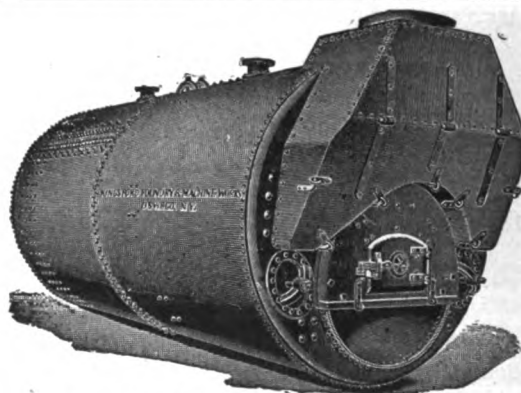
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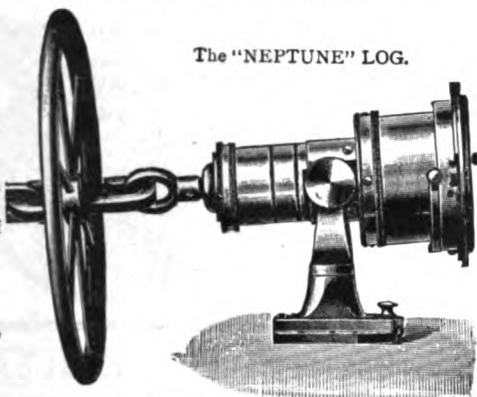
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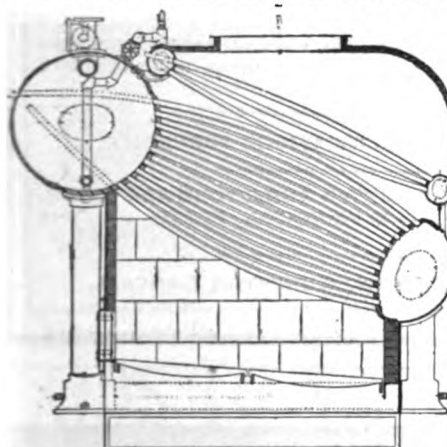
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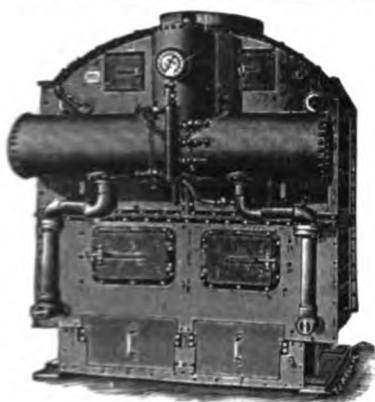


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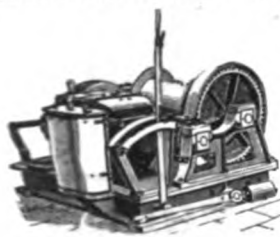
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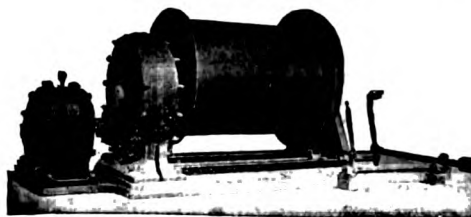
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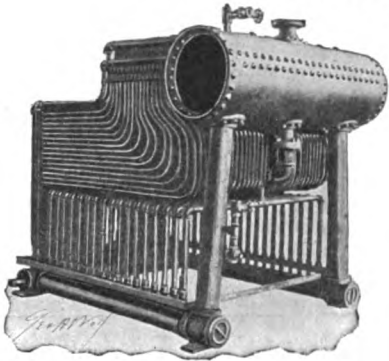
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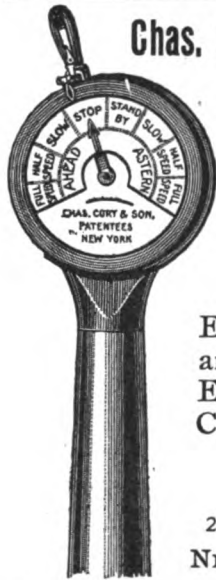
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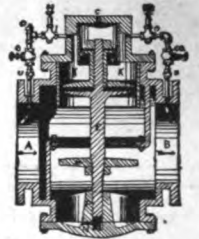
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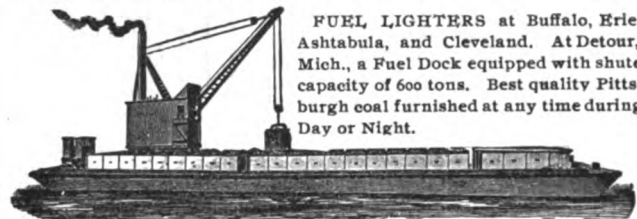
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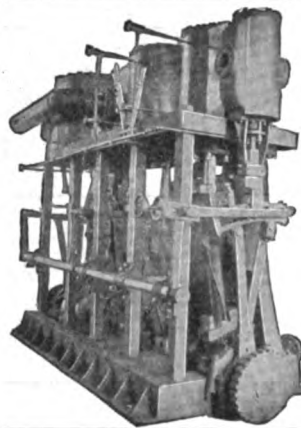
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PILE DRIVING AND SUBMARINE WORK.

Buffalo Dredging Co.....Buffalo.
 Chicago & Gt. Lakes Dredge & Dock Co.....Chicago.
 Dunbar & Sullivan Dredging Co.....Buffalo.
 Fitz-Simons & Connell Co.....Chicago.
 Hickler Bros. Sault Ste. Marie, Mich.
 Parker Bros. Co., Ltd.....Detroit.
 Smith Co., L. P. & J. A.....Cleveland.
 Starke Dredge & Dock Co., C. H.....Milwaukee.
 Sullivan, M. Detroit.

PIPE, WROUGHT IRON.

Crane Co. Chicago.
 Macbeth Iron Co.....Cleveland.

PLANING MILL MACHINERY.

Atlantic Works, Inc.....Philadelphia.

PLATES—SHIP, STRUCTURAL, ETC.

Otis Steel Co.....Cleveland.

PNEUMATIC TOOLS.

Allen, John F.....New York.

POLISH FOR METALS.

Bertram's Oil Polish Co.....Boston.

PRESSURE REGULATORS.

Kieley & Mueller New York.
 Ross Valve Co.....Troy, N. Y.

PROPELLER WHEELS.

American Ship Building Co.....Cleveland.
 Atlantic Works East Boston, Mass.
 Cramp, Wm. & Sons.....Philadelphia.
 Detroit Ship Building Co.....Detroit.
 Fore River Ship & Engine Co., Quincy, Mass.
 Great Lakes Engineering Works.....Detroit.
 Hyde Windlass Co.....Bath, Me.
 Jenks Ship Building Co.....Port Huron, Mich.
 Lockwood Mfg. Co.....East Boston, Mass.
 Macbeth Iron Co.....Cleveland.
 Milwaukee Dry Dock Co.....Milwaukee.
 Newport News Ship Building Co.....Newport News, Va.
 Phosphor Bronze Smelting Co., Ltd.....Philadelphia.
 Roelker, H. B.....New York.
 Sheriffs Mfg. Co.....Milwaukee.
 Superior Ship Building Co.....Superior, Wis.
 Thrupp & Sons Co., J. E.....Trenton, N. J.
 Trout, H. G.....Buffalo.
 United States Ship Building Co.....New York.

PROJECTORS, ELECTRIC.

General Electric Co.....Schenectady, N. Y.
 Westinghouse Electric & Mfg. Co.....Pittsburg, Pa.

PUMPS FOR VARIOUS PURPOSES.

Blake, Geo. F., Mfg. Co.....New York.
 Great Lakes Engineering Works.....Detroit.
 Kingsford Foundry & Machine Works.....Oswego, N. Y.

PUNCHES, RIVETERS, SHEARS.

Allen, John F.....New York.

RANGES.

Russell & Watson Buffalo

REFRIGERATING APPARATUS.

Great Lakes Engineering Works.....Detroit.
 Roelker, H. B.....New York.

REGISTER FOR CLASSIFICATION OF VESSELS.

Great Lakes Register Cleveland.
 Record of American & Foreign Shipping.....New York.

REPAIRS—ENGINE AND BOILER.

(See also Boiler Manufacturers and Engine Builders.)

Georgian Bay Engineering Works.....Midland, Ont.
 Gogebic Steam Boiler Works.....Duluth, Minn.
 Forest City Boiler Co.....Cleveland.
 Marine Iron Co.....Duluth, Minn.

RIVETING MACHINES.

Allen, John F.....New York.

ROWBOATS.

Mullins, W. H.....Salem, O.

SAFETY VALVES.

American Steam Gauge & Valve Mfg. Co.....Boston.
 Ashton Valve Co.....Boston.
 Crane Co.....Chicago.
 Lunkenheimer Co.....Cincinnati.

SAIL MAKERS.

Baker, Howard H. & Co.....Buffalo.
 Upson-Walton Co.....Cleveland.
 Wilson & Silsby Boston.

SALVAGE COMPANIES.

See Wrecking Companies.

SEARCH LIGHTS.

General Electric Co.....Schenectady, N. Y.
 Westinghouse Electric & Mfg. Co.....Pittsburg, Pa.

SHEARS.

See Punches, Rivets, and Shears.

SHIP AND BOILER PLATES AND SHAPES.

Otis Steel Co.....Cleveland.

SHIP BUILDERS.

American Ship Building Co.....Cleveland.
 Atlantic Works East Boston, Mass.
 Bertram Engine Works Co., Ltd.....Toronto, Can.
 Buffalo Dry Dock Co.....Buffalo.
 Cramp, Wm. & Sons.....Philadelphia.
 Craig Ship Building Co.....Toledo, O.
 Chicago Ship Building Co.....Chicago.
 Detroit Ship Building Co.....Detroit.
 Fore River Ship & Engine Co., Quincy, Mass.
 Great Lakes Engineering Works.....Detroit.
 Jenks Ship Building Co.....Port Huron, Mich.
 Lockwood Mfg. Co.....East Boston, Mass.
 Manitowoc Dry Dock Co.....Manitowoc, Wis.
 Milwaukee Dry Dock Co.....Milwaukee.
 Newport News Ship Building Co.....Newport News, Va.
 Roach's Ship Yard Chester, Pa.
 Shipowner's Dry Dock Co.....Chicago.
 Smith & Son, Abram.....Algonac, Mich.
 United States Ship Building Co.....New York.
 Willard, Chas. P. & Co.....Chicago.

SHIP CHANDLERS.

Baker, Howard H. & Co.....Buffalo.
 Marine Mfg. & Supply Co.....New York.
 Upson-Walton Co.....Cleveland.

SHIP LANTERNS AND LAMPS.

Russell & Watson Buffalo.

SHIP TIMBER.

Martin-Barriss Co.....Cleveland.

SMOOTH-ON COMPOUND, FOR REPAIRS.

Smooth-On Mfg. Co.....Jersey City, N. J.

STAYBOLTS, IRON OR STEEL, HOLLOW OR SOLID.

Falls Hollow Staybolt Co.....Cuyahoga Falls, O.

STEAM VESSELS FOR SALE.

Elwell, Jas. W. & Co.....New York.
 Gilchrist & Co., C. P.....Cleveland.
 Holmes, Samuel New York.
 Lester, S. S.....Quebec, Can.
 McCarthy, T. R.....Montreal, Can.

STEAMSHIP LINES, PASS. AND FREIGHT.

American Line New York.
 Anchor Line Buffalo.
 Boston Steamship Co.....Boston.
 Cleveland & Buffalo Transit Co.....Cleveland.
 Detroit & Cleveland Line.....Cleveland.
 Erie & Western Trans. Co.....Buffalo.
 Goodrich Trans. Co.....Chicago.
 International Mercantile Marine Co.....Philadelphia.
 Manitou Steamship Co.....Chicago.
 Mexican-American S. S. Co.....New Orleans, La.
 New York & Cuba Mail S. S. Co.....New York.
 Niagara, St. Catharines & Toronto Ry. & Nav. Co.....St. Catharines, Ont.
 Northern Michigan Trans. Co.....Chicago.
 Red Star Line New York.
 Richelieu & Ontario Nav Co.....Montreal, Can.
 United Fruit Co.....Boston.

STEEL CASTINGS.

Macbeth Iron Co.....Cleveland.
 Otis Steel Co.....Cleveland.

STEERING APPARATUS.

American Ship Building Co.....Cleveland.
 Chase Machine Co.....Cleveland.
 Dake Engine Co.....Grand Haven, Mich.
 Detroit Ship Building Co.....Detroit.
 Hyde Windlass Co.....Bath, Me.
 Jenks Ship Building Co.....Port Huron, Mich.
 Marine Mfg. & Supply Co.....Cleveland.
 Moulton Steering Engine Co.....New York.
 Pawling & Harnischfeger Milwaukee.
 Sheriffs Mfg. Co.....Milwaukee.

SUBMARINE DIVING APPARATUS.

Morse & Son, A. J.....Boston.
 Schrader's Son, A.....New York.

SURVEYORS, MARINE.

Gaskin, Edward Buffalo.
 Hynd, Alexander Cleveland.
 Lovejoy, H. O.....Buffalo.
 Matteson & Drake Philadelphia.
 Parker Bros. Co., Ltd.....Detroit.
 Nacey, James Cleveland.
 Rice, Henry Buffalo.
 Steel, Adam Cleveland.
 Wood, W. J.....Chicago.

TESTS OF MATERIALS.

Hunt, Robert W. & Co.....Chicago.
 Pittsburg Testing Laboratory, Ltd.....Pittsburg.

TILING, INTERLOCKING RUBBER.

New York Belting & Packing Co.....New York.

TOOLS, METAL WORKING, FOR SHIP AND ENGINE WORKS.

Allen, John F.....New York.
 Watson-Stillman Co.....New York.

TOOLS, WOOD WORKING.

Atlantic Works, Inc.....Philadelphia.

TOWING MACHINES.

American Ship Windlass Co.....Providence, R. I.
 Chase Machine Co.....Cleveland.

TOWING COMPANIES.

Donnelly Salvage & Wrecking Co.....Kingston, Ont.
 Great Lakes Towing Co.....Cleveland.
 Midland Towing & Wrecking Co., Ltd.....Midland, Ont.

TRAPS, STEAM.

Kieley & Mueller New York.
 Lunkenheimer Co.....Cincinnati.
 Sturtevant Co., B. F., Hyde Park, Mass.

TRUCKS.

Boston & Lockport Block Co.....Boston.

TUBING, SEAMLESS.

Shelby Steel Tube Co.....Pittsburg, Pa.

Buyers' Directory of the Marine Trade.—Continued.

VALVES, STEAM SPECIALTIES, ETC.

American Steam Gauge & Valve Mfg. Co. Boston.
Ashton Valve Co. Boston.
Crane Co. Chicago.
Jenkins Bros. New York.
Kiley & Mueller New York.
Lunkenheimer Co. Cincinnati.
Ross Valve Co. Troy, N. Y.

VALVES FOR WATER AND GAS.

Ross Valve Co. Troy, N. Y.

VARNISHES.

Detroit Varnish Co. Detroit.
Detroit White Lead Works. Detroit.
Forest City Paint & Varnish Co. Cleveland.
New Jersey Zinc Co. New York.
Also Ship Chandlers.

VENTILATING APPARATUS FOR SHIPS.

Rayley & Sons Co., Wm. Milwaukee, Wis.
Sturtevant, B. F. Co. Hyde Park, Mass.

VESSEL AND FREIGHT AGENTS.

Boland, John J. Buffalo.
Brown & Co. Buffalo.
Ewell, Jas. W. & Co. New York.
Fibbcke, C. W. & Co. Chicago.
Fleming & Co., P. H. Chicago.
Gibbs & Co., C. P. Cleveland.
Hall & Root Buffalo.

VESSEL AND FREIGHT AGENTS—Con.

Helm & Co., D. T. Duluth.
Hawgood & Co., W. A. Cleveland.
Holmes, Samuel New York.
Hutchinson & Co. Cleveland.
Lester, S. S. Quebec, Can.
McCarthy, T. R. Montreal.
Mitchell & Co. Cleveland.
Parker Bros. Co., Ltd. Detroit.
Prindville & Co. Chicago.
Richardson, W. C. Cleveland.
Sullivan, D. & Co. Chicago.

WATER GAUGES.

Bonner & Co., Wm. T. Boston.
Lunkenheimer Co. Cincinnati, O.

WIRE ROPE AND WIRE ROPE FITTINGS.

Baker, H. H. & Co. Buffalo.
DeGrauw, Aymar & Co. New York.
Upson-Walton Co. Cleveland.

WHISTLES, STEAM.

American Steam Gauge & Valve Mfg. Co. Boston.
Ashton Valve Co. Boston.
Lunkenheimer Co. Cincinnati.

WINDLASSES.

American Ship Windlass Co., Providence, R. I.
American Ship Building Co., Cleveland.
Hyde Windlass Co., Bath, Me.
Jenks Ship Building Co., Port Huron, Mich.
Marine Mfg. & Supply Co., New York.

WINCHES.

American Ship Windlass Co., Providence, R. I.
Georgian Bay Engineering Works. Midland, Ont.
Hyde Windlass Co. Bath, Me.

WOOD WORKING MACHINERY.

Atlantic Works, Inc. Philadelphia.

WRECKING AND SALVAGE COMPANIES.

Donnelly Salvage & Wrecking Co. Kingston, Ont.
Great Lakes Towing Co. Cleveland.
Midland Towing & Wrecking Co., Ltd. Midland, Ont.
Parker Bros. Co., Ltd. Detroit.

YACHT AND BOAT BUILDERS.

Bertram Engine Works Co., Ltd. Toronto, Can.
Drein, Thos. & Son. Wilmington, Del.
Georgian Bay Engineering Works. Midland, Ont.
Truscott Boat Mfg. Co. St. Joseph, Mich.
Willard, Chas. P. & Co. Chicago.

YAWLS.

Drein, Thos. & Son. Wilmington, Del.

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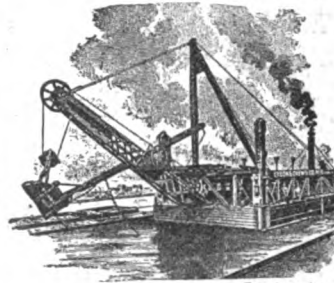
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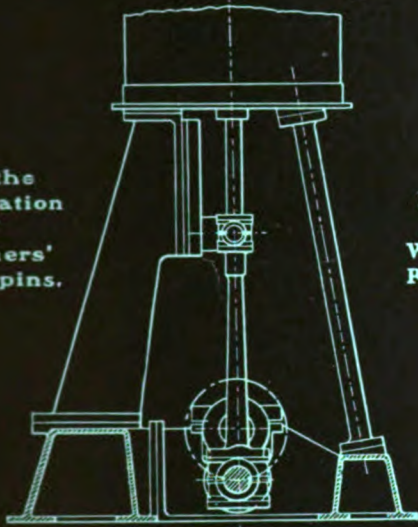
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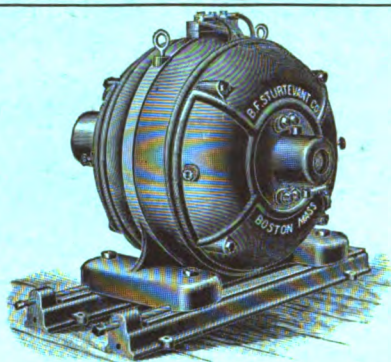
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No. 18, Southwestern Limited		*1:50 a.m.
No. 22, Lake Shore Limited	*2:12 a.m.	*2:20 a.m.
No. 20, Chicago and Cleveland Exp.	*7:20 a.m.	
No. 28, New York and Boston Exp.	*7:40 a.m.	*8:00 a.m.
No. 40, Toledo and Buffalo Accom.	†10:00 a.m.	†10:30 a.m.
No. 32, Fast Mail	*11:25 a.m.	*11:30 a.m.
No. 48, Accommodation via Sandusky ..	†1:40 p.m.	
No. 42, Boston-New York Express		*11:45 a.m.
No. 44, Cleveland and New York Spl.		*3:00 p.m.
No. 46, Southwestern Express		*3:10 p.m.
No. 116, Ashtabula Accommodation.		†4:30 p.m.
No. 6, Limited Fast Mail	*5:40 p.m.	*5:45 p.m.
No. 26, 20th Century Limited	*7:40 p.m.	*7:43 p.m.
No. 10, Chicago, N.Y. & Boston Spl.	*7:30 p.m.	*7:50 p.m.
No. 16, New England Express	*10:30 p.m.	*10:35 p.m.
No. 2, Day Express	†9:10 p.m.	†9:25 p.m.
No. 126, Norwalk Accommodation	†7:55 a.m.	
Westward	Arrive from East	Depart West
No. 7, Exposition Limited	*12:50 a.m.	
No. 11, Southwestern Limited	*2:55 a.m.	
No. 9, Day Express		†6:10 a.m.
No. 15, Boston and Chicago Special.	*3:00 a.m.	*3:15 a.m.
No. 19, Lake Shore Limited	*7:15 a.m.	*7:25 a.m.
No. 23, Western Express	*10:30 a.m.	*10:35 a.m.
No. 29, Southwestern Special	†11:10 a.m.	
No. 33, Southwestern Express	*12:25 p.m.	
No. 133, Cleve and Detroit Exp.		*12:45 p.m.
No. 47, Accommodation	†11:00 a.m.	†3:00 p.m.
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No. 43, Fast Mail	*4:35 p.m.	*4:40 p.m.
No. 127, Norwalk Accommodation		†5:10 p.m.
No. 37, Pacific Express	*6:50 p.m.	*7:20 p.m.
No. 3, Fast Mail Limited	*10:50 p.m.	*10:55 p.m.
No. 115, Ashtabula Accommodation	*8:30 a.m.	

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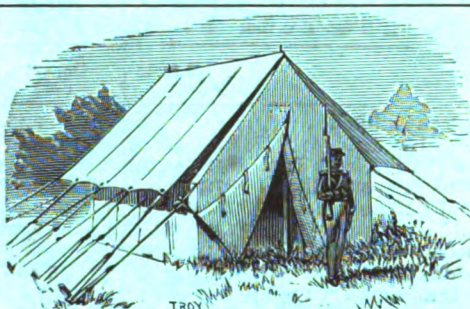
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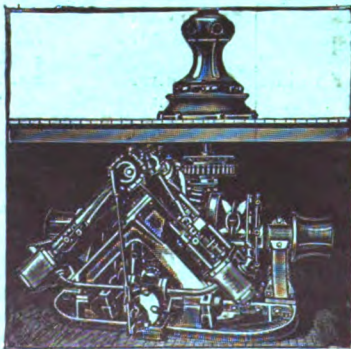


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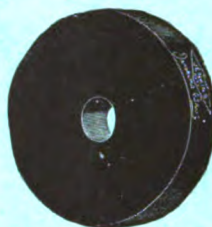
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